Five fabulous Dizzy packs must be won plus the latest news on the brilliant Brunword ROM inside this issue

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ACU

DECEMBER 1991

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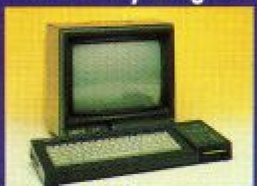
EX-TERMINATE

The Terminator is back in a crunching new sequel PLUS The Simpsons, Cisco Heat and all the best from Budgetland in your fave CPC games rave. You don't dare miss it!

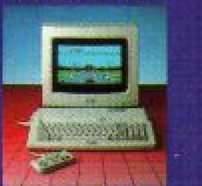
HARD BOILED SUCCESS

It's no 'yoke' as ACU discovers the delights of the new Dizzy Collection.

The Quality Magazine for Users of CPC, GX4000 & CPC PLUS


CPC


GX4000


CPC PLUS

M.C.M QUALITY EDITORIAL

12

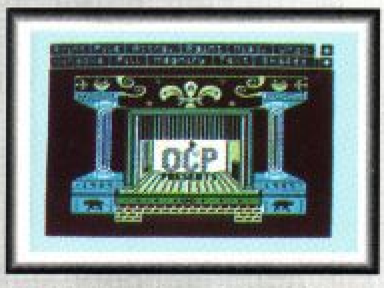
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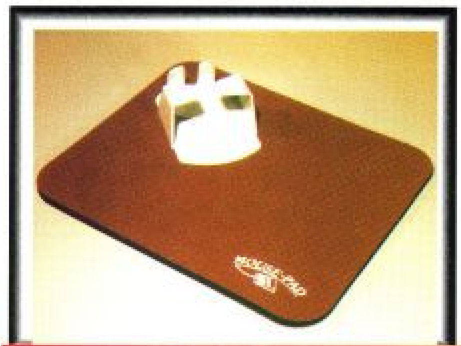
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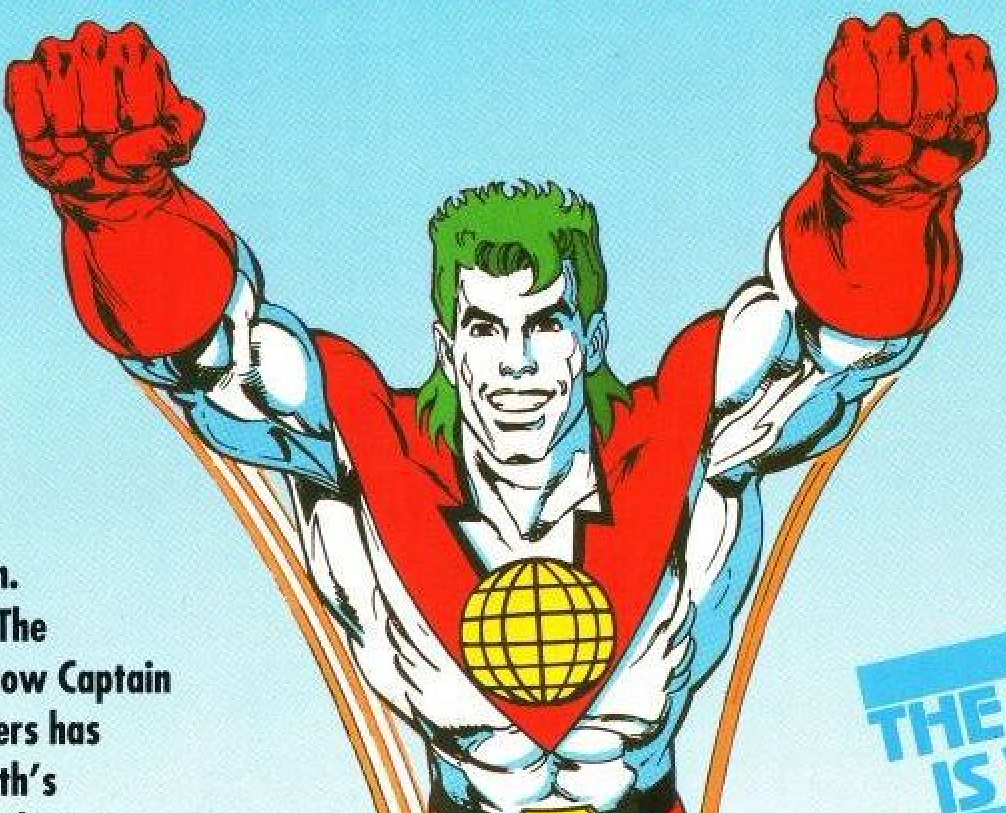
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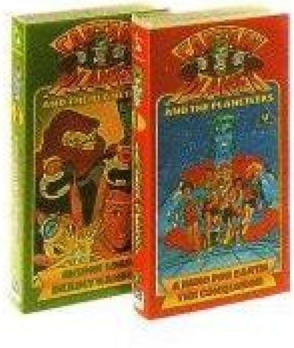


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BrunWord

ROM Module £125

The BrunWord ROM Module is a compact unit which plugs directly onto the expansion socket of the CPC6128 or 6128 Plus. It overcomes the memory limitations of the CPC computer by incorporating the entire BrunWord Elite system into one very high capacity ROM (256K bytes). The module measures three inches wide, half an inch thick and extends just two and a half inches behind the computer.

On the ROM we have BrunWord Elite, Headline, 10 Headline fonts (including 'Chelmer' and 'Clacton'), 8 fonts for downloading to a 24 pin printer, BrunSpell, 30,000 word dictionary and Info-Script. Second disc drives owners can have KDS ROMDOS added (not 6128 plus) for £15 extra, and remember that no ROM box is needed.

Great Power

Plug on the module, switch ON the computer, type |BW and the whole BrunWord Elite system is in the computer ready for immediate use. You can type into the word processor, check the spelling, print it out, use the database to print labels or search for and transfer data to the word processor, print using headline fonts and 24 pin fonts, all without a single disc operation, except maybe to load data into Info-script. Any BrunWord Elite facility can be used without upsetting other data. You can even view screen dumps stored on disc, or format a 3 inch or 3.5 inch disc, without disturbing the text in BrunWord or the data in Info-Script.

Printing Pictures

The BrunWord ROM module has a host of new features including five high quality, high speed screen dump routines for 9 pin and 24 pin printers. These are special routines using the BrunWord Elite 8 bit printer status port and they print incredibly fast compared to desk top publishers. This entire page *including* the drawing, the large 'BrunWord', the address, credit card symbols and Teddy, was printed using the BrunWord ROM module and a wide carriage 24 pin printer *in one printing operation.*

Relative Reverse

For printers with reverse (Amstrad DMP2160, Star LC10 etc), there are now three reference points. The top of the page, the current print head position and any point previously defined within the text. The print head can be moved to a relative position above or below any of these references. This refinement coupled, with the new ability to control the box reverse, make complex layouts much easier to design and give faster, more efficient printouts.

Small and Light

The BrunWord ROM Module has been made as small and light as possible. When mounted directly onto the computer it is very very reliable. You are likely to damage the keyboard if you jolt it hard enough to give problems. (Other ROM systems use an unwieldy ROM box which can 'crash' with even the slightest knock).

Very Serious

The BrunWord ROM Module is perfect for the basic machine, you need no other add ons. However, anyone who has two disc drives knows the frustration of inserting a disc, asking to load a file and being told that the other drive has no disc in it. You simply forgot to inform the computer to change over drives. You know there's no disc in the other drive, the computer now knows, so what's the problem? The software doesn't test *both* drives!!! That's now a thing of the past. The BrunWord ROM Module will load from whichever drive has the disc in it. It's simple and it's brilliant, and if your second drive is a 3.5 inch, you can use the fast file system which loads a 64K file into Info-Script in 7 seconds or (with extra memory) a 256K file in 16 seconds.

Quote

"It's totally brilliant..... carries on the extreme user friendliness of Brunning products to a very high standard.... I have one of these little gems plugged into the back of my CPC right now. As you can imagine, anything that passes through the ACU office can expect to come in for a hard time and, I can safely say that to date, the BrunWord ROM has performed in an exemplary fashion on all fronts."
Chris Knight (ACU Editor) - ACU August 1991.

BrunWord 6128 £30

Complete word processing package (disc) with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It's high speed screen routine, gives it a very fast response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with a 40 page manual and a tutor file.

Info-Script £50

Complete data processing package (disc), including all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access with no disc delays.

9 Pin Elite £55

The Elite system for 9 pin printers (on disc) consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but for 9 pin printers). Total price £55 inclusive.

9 Pin Elite+Info £92

The Elite system (on disc) as above but including Info-Script and a backup disc. Total price £92 inclusive.

24 Pin Elite+Info £90

BrunWord Elite (on disc), BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90 inclusive.

References

ACU	SEP	1990	Page 58/59	- Encryption.
ACU	OCT	1990	Page 56/57	- Headline.
ACU	DEC	1990	Page 24/25	- Info-Script.
AA	FEB	1991	Page 18	- BrunWord 6128
ACU	MAY	1991	Page 42/43	- BrunWord Elite.
ACU	JUN	1991	Page 60/61	- Elite Font Editor.
ACU	AUG	1991	Page 20/21	- BrunWord ROM Module.



'William Taylor'

This delightful line drawing by Chris Rothero is one of the illustrations in 'Strawberry Fair', a book of traditional songs and easy piano music, published by A & C Black Ltd. It was Dart Scanned into four 'screens' by agreement.

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HAPPY TALK

If you are still on the lookout for a cheap modem to get dialling with, why not take a look at the Amstrad SM2400 Stand Alone Modem. If you do, you could find yourself looking at a saving of over £200, thanks to the exclusive distributors of the beast, IBD (Centresoft) Limited.

Coming complete with the *Datatalk Plus* software package, the SM2400 is presently retailing at an incredible £189, less than half the original price.

Designed to work with the RS232 port, the SM2400 features a host of built-in automatic devices to guarantee accuracy and needs to be seen to be fully appreciated.

If you fancy taking one for a test spin, why not contact IBD on 021 625 3302 for details of your nearest stockist and see for yourself.

WINNING HEROES

Thanks to everybody who took part in our fabulous Quest Quiz in the September issue, once more the mailbag was literally bursting at the seams, so keep up the good work.

Unfortunately, as you all know, we could only pick five winners from the entries, so commiserations to all the unlucky ones whose entries got stuck to the bag lining but, before you go getting all despondent, take a look through the following list of the lucky ones, you might even be there!

P J Morley of Exhall, Coventry; Christine Collett of Forest Hill, London; Sandra Ross of Croydon; David Gaw of Larne, Co. Antrim and L Thoroughgood of Biggin Hill, Kent.

That's the lot, so get set for your prizes and happy adventuring to you all, especially as the next instalment of the Hero Quest series is due out very shortly from Gremlin, in the form of Return of the Witchlords.

A BOOK FOR CHRISTMAS

How about a bit of technology-speak to see you through the cold winter nights? There certainly seems to be something for everybody in the new Chartwell-Bratt release schedule this winter, including an excellent offering to help you understand all of those pieces of computer jargon you never thought you'd see through. The *Concise Dictionary of Computing* talks you through over 4000 of the most common words, terms, abbreviations and codes used in the computer industry and is guaranteed to break the ice at an IT party at just £9.95. The ISBN number, for ordering purposes, is 0 86238 268 8.

If, however, you are of a more electronic bent, then the *Semiconductor Reference Book* (£8.95, ISBN 0 96238 291 2) and the *Analogue Circuit Design Coursebook* (£11.95 ISBN 0 86238 286 6) should keep you widgeting well into the early hours of the morning.

Packed with diagrams, examples and plenty of ideas to try out for yourself, both of these books are ideal for the beginner and more advanced user alike.

For more information about these and other computer books for Christmas, why not contact Chartwell-Bratt on 081 467 1956 and ask for a catalogue? You won't be disappointed.



A CLEAN SHEET

What about this for a bit of good news. Have you been plagued by dirty print runs? Do you get globules of gunk over your best typing sheets? Not any more, thanks to an excellent new product from Keymax.

Coming in the form of foil-backed sheets of paper, the cleaning sheets encapsulate cleaning fluid in small bubbles on the surface. When the print mechanism hits the surface of the sheet, the bubble bursts, releasing a small amount of the fluid. Dirt and a build up of ink are transferred from the key and absorbed into the sheet.

The cleaning sheets come in two formats; A5 cut sheet for typewriters and continuous sheets for both 80 and 132 column dot matrix printers.

Easy to use and much less wasteful than conventional cleaning methods, why not try ringing Keymax on 0279 454455 for more information about these excellent degunkers.

NEW DESIGNS

Following the set-up of a brand new computer peripherals company in Gwent, we can expect to see some pretty exciting new playing tools before Christmas.

That is the claim from the newly founded Ktron company, which boasts the man behind the concept of hand held ergonomic joysticks, Wyn Holloway, as Technical Director.

MD of the new company, Tony Wassell, proudly commented: 'We make a good team. Our own talents are quite different and therefore our individual skills complement each other perfectly.'

With what is hailed to be the most innovative games controller yet seen lined up for the company's first release, very soon we should be able to see the calibre of the team's ideas, so keep your eyes glued to these pages for the latest news.

TERMINATOR THREE?

We all know what Terminators 1 and 2 are about, but what's this number three? Well, the all-new Terminator happens to be the very latest in joystick technology from Power Play and Sonmax, the two leading joystick companies which merged at the beginning of the year to increase their firepower, so to speak.

The brand new Terminator features a fully microswitched stick with switchable autofire and two top fire buttons, strategically placed on the pistol grip handle.

Manufactured to arcade quality standard and including a full 12 month warranty, the Terminator looks and feels like a thoroughbred, with all the durability of a workhorse, easy to handle and with some super-strong table suckers.



A CLEVER FIX



Want to get rid of those unsightly wires trailing from the back of your machine? You know, the ones the dog trips over every time it comes in for a biscuit. Well, why not try out a clever new device from Cablefix, designed to pack away those annoying wires once and for all in an adhesive, flexible friend.

Available in white or brown, each package contains four 1m lengths and a range of pushfit couplings for easy connection. Costing only £11.95 per pack, Cablefix could well be the answer to your office problems and is easily cut to length with scissors to suit any environment.

For more information, or to get yourself a few packs, just call Cablefix on 0825 812601 and tell them who told you about this new device.

SHOWING OFF

Yet another diary date for you to mark clearly into your books, as the home computer comes to the Ideal Home Exhibition.

Clearly recognised as an integral part of modern living, home computers and educational games will get their very own exhibition, sharing the final weekend of Britain's most important homes show.

For those who want to visit the show, the Ideal Home Computing Show takes place from April 2-5 at London's Earls Court 2 building. Guaranteed to feature all of the latest developments and innovations on the games and home computing front, this is one show not to be missed. Coinciding with the Ideal Toys and Games Show, this should also make an excellent outing for the children, so keep your eyes glued to these pages for the latest developments as and when they emerge.

A DAY IN THE PARK

Roll up, roll up and pay attention as the lucky winners of our fabulous Thorpe Park Competition (ACU September) are announced.

The lucky people below will be enjoying all the fun of the fair very shortly, so keep your eyes peeled and see if your name is on the following list. The winners are: C J Hill of Churchdown, Gloucester; R S Lomax of Wythenshawe, Manchester; Mrs C L Holman of Tower Hamleys, Dover; E E Rhodes of Lowestoft, Suffolk and Brian Morris of Ingrave, Essex.

There you have it, watch your postbox and get ready to receive your prizes very, very soon.



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BUSINESS/UTILITIES

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ZIGGY'S MAILBOX



IN THE PIPELINE

After reading a letter by Selwyn Olwen of Hatfield, Herts., in the ACU October 1991 issue, and your response, I'd be very happy to offer my advice to anyone suffering from any computer software problems.

I'm 21 years old, with 'O' levels and an 'A' level in Computer Science, and am currently participating in a part time HND Computer Studies course in Polytechnic. I've had five programs published in your 10-Liners section over the last six months – 'Record' being the latest in the October issue.

After working as a programmer in the international casino amusement industry for three years, a few weeks ago I started my own business as a freelance computer programmer and so I'm sure you understand that the fewer the interruptions I get during the day, the better.

However, if anybody would like to drop me a line, enclosing a SAE, I'd be very pleased to help them. The topics I feel I can offer my advice on are: Z80 Machine Code Programming (especially CPC6128), Locomotive Basic of all kinds, Pascal programming (especially Turbo Pascal on the Amstrad PC), C Programming (but I have no compiler of my own).

So, taking a deep breath in anticipation of incoming mail, I'll dash off to the post office with this letter.

Robin Gilbert, Pipeline Software, 9 Bryn Glas Terrace, Pyle, Bridgend, Mid-Glamorgan, South Wales CF33 6AG.

Ziggy: Thank you very much for your exceedingly kind offer, Robin. This is the first of our specialist Agony Aunts/Uncles to offer their services, and very welcome they will be to all readers.

As Robin says, however, he is a busy man, so unless your problem is specific, you can still write to me or Doc Watson at ACU for an answer at any time.

Thanks again, Robin and the ACU Crew wish you the best of luck in your new enterprise.

MULTI-BLUES

Please, please print this letter as I am sure there are quite a few people in my position. Once I have bought a game, e.g. *Turricane, Shinobi, Target Renegade,* I find that these games are multi-loads. Please can you put at the end of your reviews if the games are multi-load or not?

Grant Locke, Kilmarnock, Ayrshire.

Ziggy: Apologies to all those multi-load haters out there, but many of the full-price cassette games tend to be of this nature nowadays, due to the size of the programs involved. Multi-load has always been the curse of the cassette owner, but one which has to be accepted. However, to keep you happy though, we will, where possible, make the necessary addendums on our reviews. OK?

GOOD FORMAT

You probably get tons of letters like this. If you do, please answer this one, even though you might just chuck all the others out. Me and my mates have started up a computer magazine and we have called it Your Format.

It is for various machines and, in particular, the Amstrads. The main question is, are we allowed to copy some of your mega-brill reviews in our own words and, if so, should we put your name in the magazine.

Also, we are looking for people to write to and buy the magazine, so could you please print the address? We would be very grateful.

Lee Parkin, The Main Man, Your Format, 4 Ponsford Road, Knowle Park, Bristol BS4 2UP.

Ziggy: Now that's a slightly lighter note, I'd say. Of course we can print your address and good luck with your publication. As for the other matter, there are some rather

convoluted laws about copyrights in publishing, so any word for word cribbing should really be acknowledged somewhere in the magazine. However, and even though I shouldn't really say this, if you write the copy in your own words, who's the wiser, as long as it isn't blatantly obvious and regular.

Basically, you should really acknowledge your sources, but use your own discretion and good luck.

BAD NEWS

Please find enclosed the reply I received today as a result of replying to an advertisement in the 'Penpals' section of Bits 'n' Pieces.

As you will see, it is blatant piracy and I hope you take appropriate action.

Name and address supplied.

Ziggy: Yes, I have here in my possession a very long list indeed, of all types of CPC games, from the early days right through to this summer.

The list was sent in reply to an honest request of penpalship, and offers the sender the chance to get hold of any one of these games for just £2 and a blank cassette.

Does that sound like piracy to you? It certainly is. I'm not about to print any names in this column, but the person supplying the list in question will know who I'm talking about and his advertisement will certainly be removed from the B 'n' P section forthwith.

Software piracy may be easy on cassette, but it is illegal and damaging to the market as well. Further action may be taken in this case and if there are any others out there offering bootlegged games at knockdown prices, be warned, we have never and will not condone it.

COMPATIBILITY PLUS

Is this the answer to non-compatibility on the 6128+? I have just purchased a disc that would not run on my Plus machine from Hewson. To get it to work, do not follow their instructions, but instead, type in :CPM. Now it loads and works fine.

This may help others who have non-compatibility with the 6128+. I have only just started to read your mag, as I couldn't get it, but what I have seen I like and will be subscribing to it.

Mark Aitken, Hollywood, Birmingham.

PS. How about Dizzy on disc? Then they would sell more.

Ziggy: Basically, trying out the old :CPM trick on all games that you are having problems loading, is a good idea as a short cut. However, it is not the answer to non-compatibility, as this has rather more to do with the ROM search routines of the earlier games. Quite simply, the cartridge set-up of the Plus machine will not allow some of those earlier games to run, although all of the more up to date games are devised to cater for this and should run perfectly. Thanks for your kind words, by the way and, finally, I think persuading Code Masters to move to disc format would be a fairly hard task, considering the extremely strong market position they hold on the cassette format at the moment. Nice idea, though. Are you listening up there you Codeys?

SIM TROUBLE

I recently purchased *Sim City* for my 6128 and am having great trouble. Up to now, I have tried seven – yes seven – discs of this. They load OK, but I cannot stop the game from scrolling up the screen. Have you, or anybody else, got any ideas? It's driving me mad and not doing my eyes a lot of good either.

K. W. Austin, Margate, Kent.

Ziggy: Hmmm. This seems a most puzzling conumdrum but, unfortunately, there doesn't seem to be enough information to formulate a full answer, I'm afraid. For example, does your machine do this with all of your software, or just this game. If is does, then it could be as simple as adjusting the vertical hold toggle on the monitor.

Infogrames has assured me that there is nothing in the specific programming to cause this kind of problem, so there may well be a minor fault within your machine. If adjusting your vertical hold button does nothing, why not try ringing the National Amstrad Repair Centre on 0733 391234 for advice?

DECK THE TAPES

With reference to the letter from a reader in Bootle, concerning cover tape and increase in price of the magazine to offset the extra cost. No! No! No! No! No!!

If there has to be an increase in price then all readers should be considered and catered for accordingly, not just CPC464 owners.

There are many of your readers whose interest in their computer goes further than the FIRE button on their joysticks! To me, a 6128+ owner, a cover tape is a useless piece of junk. Would your reader from Bootle like to pay £3.50 for a magazine with a cover disc? I think not. Why should 6128 owners be expected to subsidise the whims of the 464 owners. I refer them to the budget shelves of their local computer shop, where junk material is in abuncance at an affordable price.

The magazine is supposed to cater for all readers. Let it do so.

Stan Gardner, Stratford, London

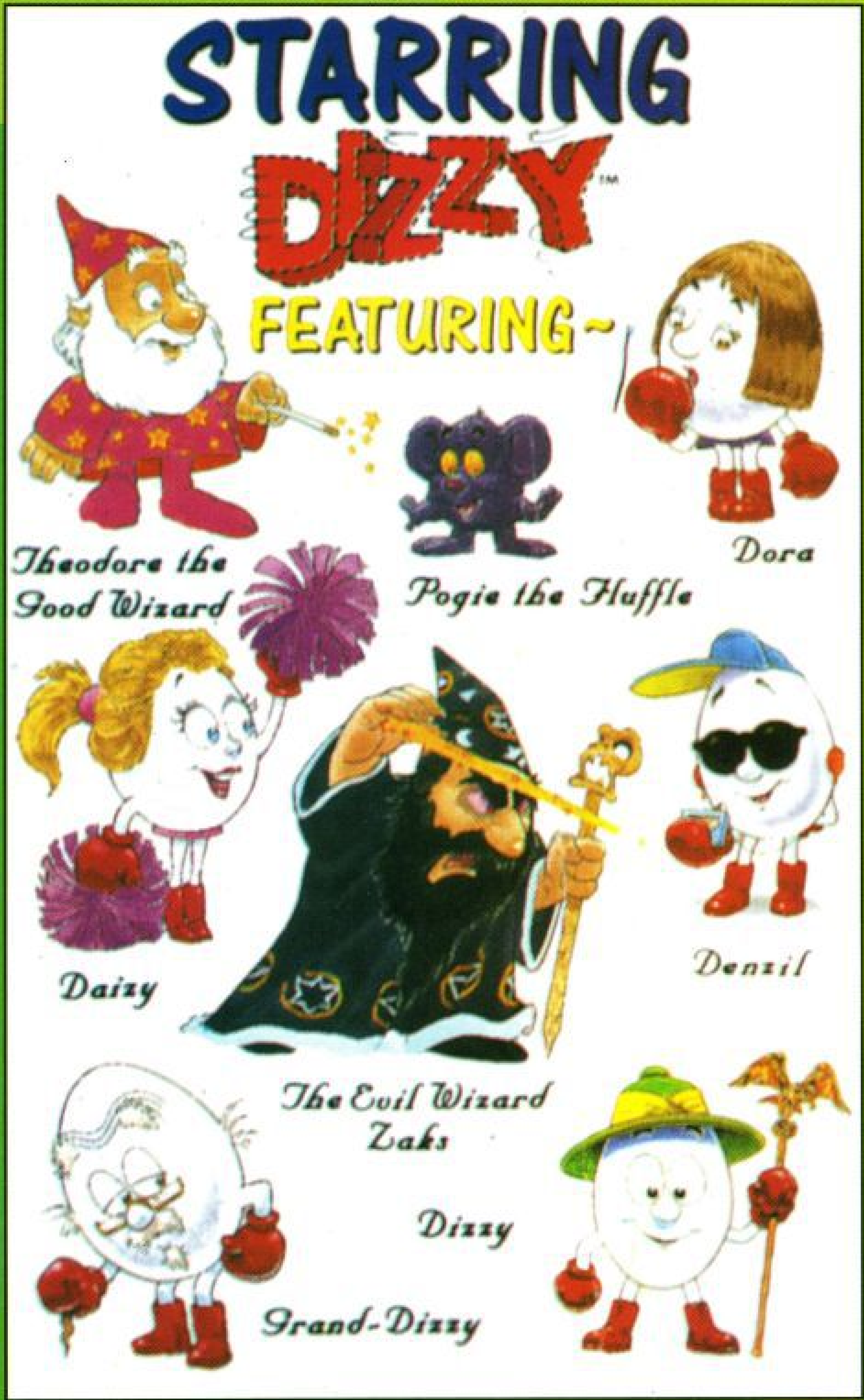
PS. Where did he get his prices from? Amstrad Action?

Ziggy" Ooer! There's nothing like a good bit of dissent between 464 and 6128 owners to set emotions running high. The very fact that both formats are still around today has always led to competition within the same stable, so to speak, and it has always been our policy to try to provide a balance between the gamesters and the more serious users.

However, even that does not split the 464 and 6128 owners neatly. With such a broad user base and such a versatile machine, there is always going to be a minority of people who don't feel adequately catered for, which is why readers are asked to air their views on these pages.

As for cover tapes crammed with games? No, we don't feel that they do cater fairly for the majority of users, which is why we have not featured them in the past. What about a disc, crammed with both games and utilities? Well, I must ask you where you get your prices from, because it certainly wouldn't run to £3.50. We feel that in this day and age, the majority of CPC users would be prepared to pay a little extra for that kind of a first in the CPC world. What do you think?

COMPETITION



Oyez! Oyez! Have we got some stupendous prizes for you this month! Fancy getting your hands on an incredible Dizzy goodie bag, courtesy of those kindly Code Masters people? Of course you do. Each Dizzy branded sports bag contains a fabulous wall clock, a neon purse, a sports cap, a puzzle, a pen and much, much more! Incredible, what? There are five of these beautiful beasties on offer and all you need to do, to be in with a chance of winning one, is answer the three simple questions below and send them in ASAP to the address below. Get going and good luck.

1. Which was the first Dizzy adventure?

2. Name the evil magician who usually has it in for Dizzy and his friends.

3. Which celebrated programming pair are responsible for Dizzy's outrageous outings?

**ACU Dizzy Challenge,
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MENU

BY RICK JACKSON

This little gem introduces an RSX called menu, which is used to display a pop-up menu in any mode, anywhere you like, to return a chosen option.

The format is- ¦MENU,x, y,item1$, item2$. . . item9$,¦p%

Where x,y=The physical screen co-ordinates of the top left-hand corner of the menu.

item1$-item9$=Actual menu options (Max. 9)

¦p%=Return chosen option.

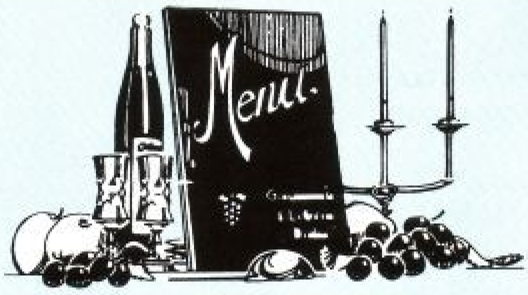
Once the item is selected, the menu clears and the screen is as it was.

Here's an example:

200 x=10:y=12:p%=10
210 item1$="View File":item2$="Save File":
item3$="Load File": item4$ = "Quit"
220 ¦MENU,x,y,item 1$,item 2$,item 3$,item4$,@p%
230 ON p% gosub 1000, 2000, 3000, 4000

This would display the menu:1-View File
2-Save File
3-Load File
4-Quit

Try it for yourself and have fun.




```
1 '   MENU by Rick Jackson [71]
2 '   Sets up RSX called ¦MENU [72]
3 '    ie. ¦MENU,X,Y,M1$,M2$,....M9$,@P [73]
4 '    X,Y = TOP LEFT COORDINATES [74]
5 '    M1$ etc = MENU ITEMS (MAX 9) [75]
6 '    @P% = RETURNS ITEM SELECTED [76]
7 ' [77]
8 ' !!!!! SAVE PROGRAM BEFORE RUNNING !!!!! [78]
9 ' [79]
10 MEMORY &7FFF:lin=30:FOR addr=&8000 TO &80E0 STE [B6]
P &20:READ dat$:tot=0:FOR i=0 TO &1F:byte=VAL("&"+ [B6]
MID$(dat$,i*2+1,2)) [B6]
20 POKE addr+i,byte:tot=tot+byte:NEXT:READ chksum: [15]
IF chksum<>tot THEN PRINT CHR$(7);"DATA ERROR IN L [15]
INE";lin:STOP ELSE lin=lin+10:NEXT:CALL &8000:NEW [15]
30 DATA 010E80210A80CDD1BCC9000000001380C317804D45 [6C]
4ED5F53E04CD5BBD2100C0,3068 [6C]
40 DATA 110040010040EDB0AFCD5BBDF1D6035F1600D5DD23 [2C]
DD23DD6E00DD66017EBA38,3542 [2C]
50 DATA 0157DD23DD231D7B20ED4AD1433E09CDB4BBF5C505 [47]
0CDD7E003D6F805FDD7E02,3564 [47]
60 DATA 3D678157CD66BBAFCD90BB3CCD96BBCD6CBBC1C5DD [AD]
2BDD2BFD7000210101E57D,4359 [AD]
70 DATA CD75BBDD6E00DD66014E235E2356EB78ED44FD8600 [A0]
C631CD5ABB3E2DCD5ABB7E,3983 [A0]
80 DATA CD5ABB230D79FE0020F5E12C2601E5CD75BBDD2BDD [60]
2B0578FE0020C7E1C104CD,3993 [60]
90 DATA 18BBD630B830F8FE0028F4DD6E00DD660177F1CDB4 [5A]
BB3E04CD5BBD1100C02100,3871 [5A]
100 DATA 40010040EDB0AFCD5BBDC900000000000000000000 [DC]
0000000000000000000000,1403 [DC]
```

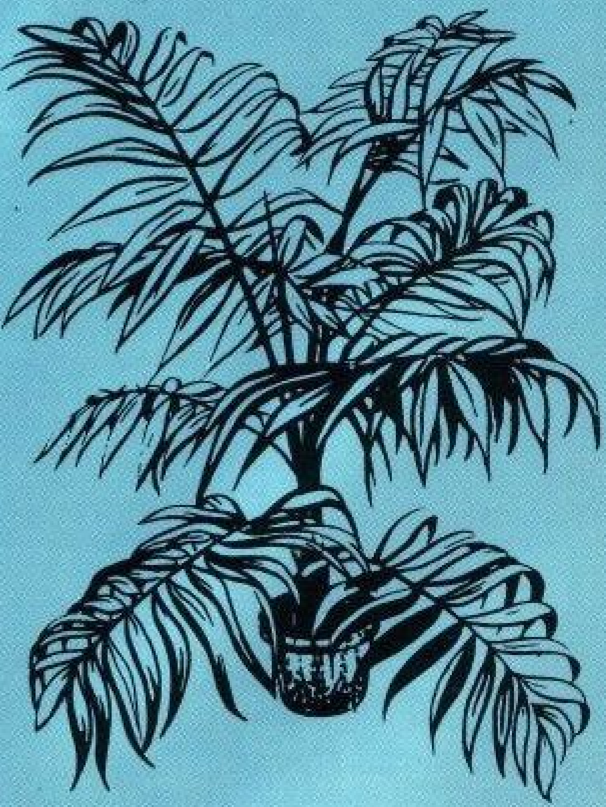


SNAKE

BY DANNY THOMAS

Another simple demo this one, but equally effective, as you select the number of snake segments and watch the special screen effects, as controlled by the cursor keys. Use it in your own programs for something a little different.

```
10 MODE 1:LOCATE 1,1:PRINT"     Snake--1991 Danny T for Elekt [3A]
ronix":LOCATE 2,2:PRINT"use the cursor keys to move the snak [3A]
e":INPUT"Enter SNAKE segment size (20=norm):-",a [3A]
20 BORDER 0:INK 0,0:INK 1,24:GRAPHICS PEN 1 [0B]
30 TAG:MODE 2:PLOT 320,200: [AB]
40 I=0 [C9]
50 PRINT £2,CHR$(22);CHR$(1):GRAPHICS PEN 1:DRAWR a,0:DRAWR  [27]
0,a:DRAWR -a,0:DRAWR 0,-a [27]
60 IF INKEY(0) =0 THEN PLOTR 0,1:MOVER 0,1 [64]
70 IF INKEY(1)-0 THEN PLOTR 1,0:MOVER 1,0 [34]
80 IF INKEY(2)-0 THEN PLOTR 0,-1:MOVER 0,-1 [CD]
90 IF INKEY(8)-0 THEN PLOTR -1,0:MOVER -1,0 [1C]
100 GOTO 50 [A4]
```



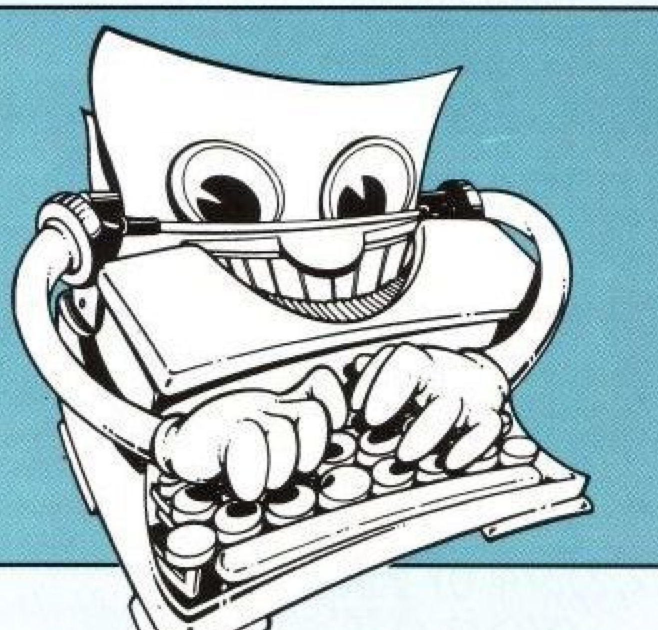
FERN

BY SIMON WATSON

Try this excellent graphics demo for size as it cleverly plots out an intricately designed fern frond. Simple, but oh so effective.

```
1 ' Sierpinski Fern
2 ' by Simon Watson
3 ' (c)1991
4 '
10 MODE 2:INK 1,19:p(0)=0:p(1)=0.2:p(2)=-0.15
20 p(3)=0.85:q(0)=0:q(1)=-0.26:q(2)=0.28
30 q(3)=0.04:r(0)=0:r(1)=0.23:r(2)=0.26
40 r(3)=-0.04:s(0)=0.16:s(1)=0.22:s(2)=0.24
50 s(3)=0.85:t(0)=0:t(1)=0:t(2)=0:t(3)=0
60 u(0)=0:u(1)=1.6:u(2)=0.44:u(3)=1.6
70 a(0)=10:a(1)=80:a(2)=150:a(3)=1000
80 j=INT(RND*1000):FOR n=3 TO 0 STEP-1:IF j<a(n) THEN k=n
90 NEXT:x1=(p(k)*x)+(q(k)*y)+t(k):y=(r(k)*x)+(s(k)*y)+u(k)
100 x=x1:PLOT (x*50)+250,y*30:GOTO 80
```

TYPE-IT

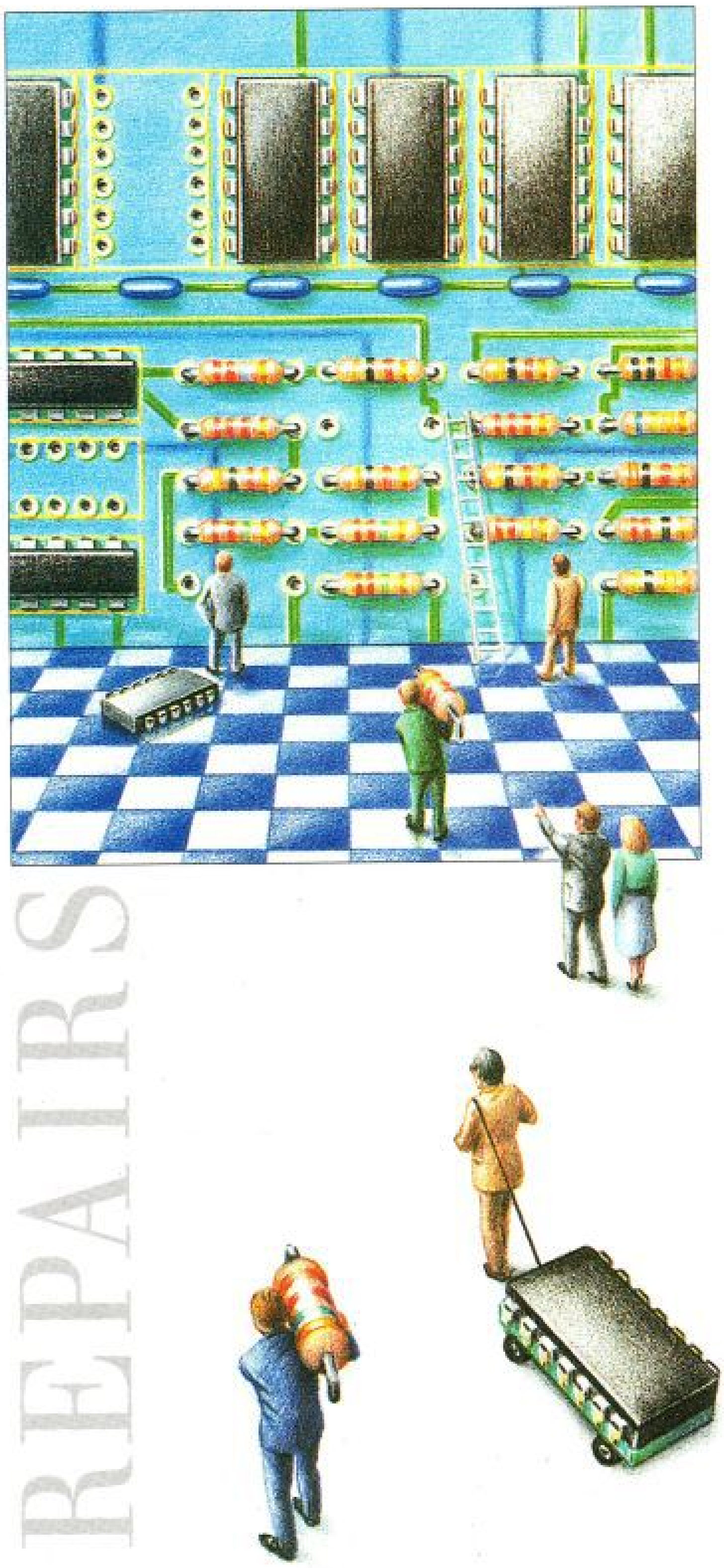


BY G. BOWNES

What about this excellent little proggie, which offers you a wordprocessor, enabling you to create and print a file of up to 3,120,000 characters. Exceedingly simple to use, it should come in very handy indeed for simple letters, etc. Try it, you'll like it.

```
1 REM Type-it  By G.Bownes
2 DIM text$(13000)
3 'total text space=3,120,000 characters
5 MODE 1:INK 0,15:BORDER 15:INK 1,26:INK 2,25,15:SPEED INK 30,20:INK 3
,24
10 LOCATE 8,2:PEN 1:PAPER 0:PRINT"Type-it   ";CHR$(164);"1991 G.Bownes
":LOCATE 1,4:PRINT STRING$(40,"_");
20 LOCATE 10,8:PEN 3:PRINT"1.Type in data.":LOCATE 10,13:PEN 1:PRINT"2
.Print out data."
30 LOCATE 1,18:PEN 3:PRINT STRING$(40,"_");:LOCATE 15,22:PEN 2:PRINT"P
ress 1/2"
40 i$=INKEY$:IF I$="" THEN GOTO 40:IF i$="1" OR I$="2" THEN GOTO 50 EL
SE 40
50 IF i$="1" THEN 60 ELSE 90
60 CLS:LOCATE 10,8:PEN 1:PRINT"Are you sure? (y/n)":LOCATE 22,10:LINE
INPUT y$:IF y$="Y" OR y$="y" THEN 70 ELSE 5:CLS:LOCATE 10,8:INPUT"Esti
mate how many lines long it is going to be ";q:l=q/3
70 CLS:PRINT:PRINT:PRINT:INPUT"Estimate how many lines long it is goin
g to be ";q:l=q/3:MODE 2:CALL &BC02:INK 1,26:PRINT"Press ENTER after e
very 3 lines.":WINDOW 1,70,3,25
80 FOR x=1 TO l:LINE INPUT text$(x):PRINT CHR$(1):NEXT:PRINT:PRINT"Fil
e full - press any key:":CALL &BB18:GOTO 5
90 CLS:INK 0,6:BORDER 6:PEN 1:LOCATE 10,8:PRINT"Are you sure? (y/n)":L
OCATE 22,10:LINE INPUT y$:IF y$="Y" OR y$="y" THEN 100 ELSE 5
100 WIDTH 70:MODE 2:LOCATE 1,8:PRINT"Turn on printer,load paper and tu
rn ON LINE. Press any key when ready:":CALL &BB18:FOR p=1 TO 50:PRINT#
8,text$(p):NEXT:FOR P=1 TO 500:NEXT:GOTO 5
```

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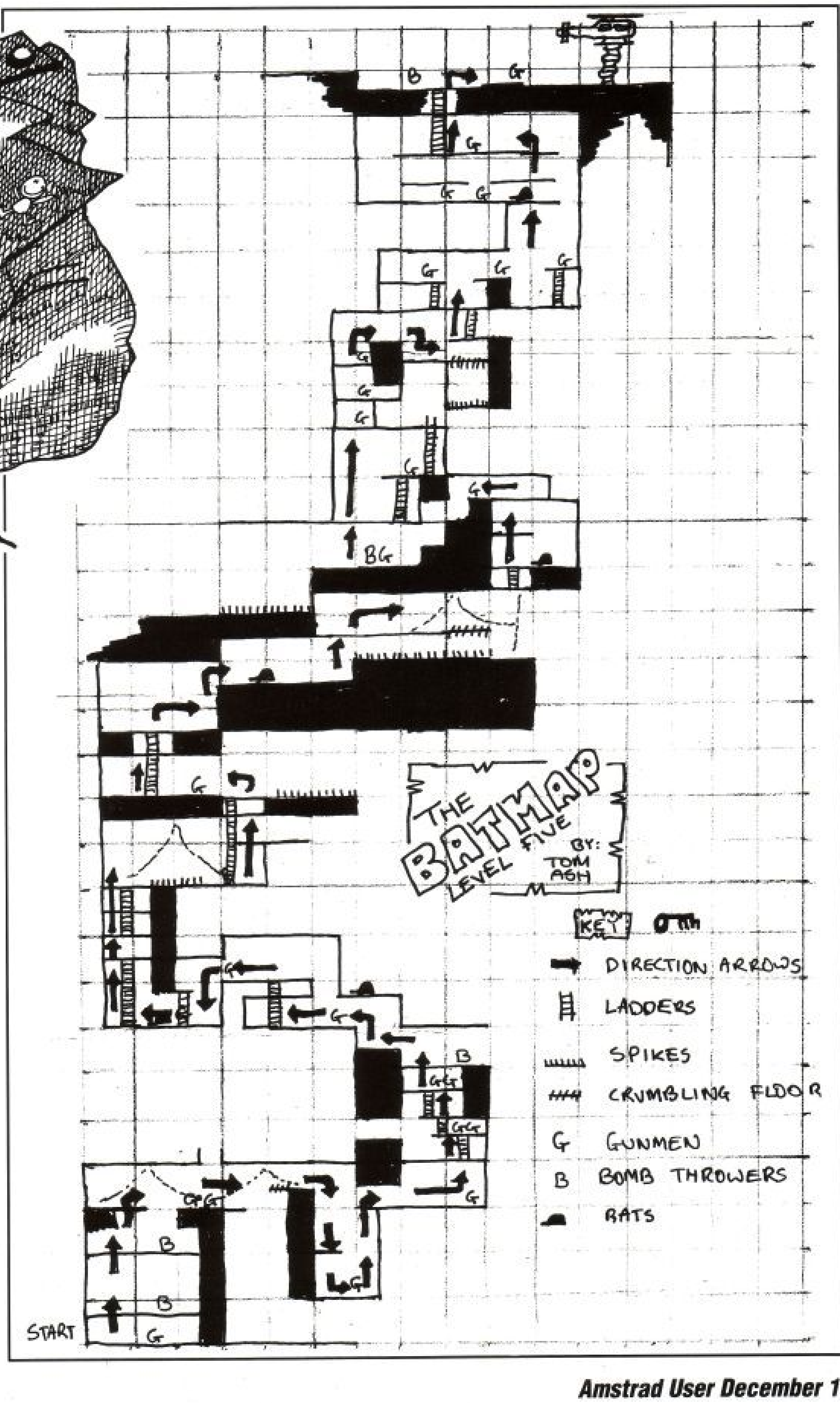
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MYTHICAL SUCCESS

Mr Hacker takes time off to solve some Myth blues amidst some other hints and tips.





Whilst browsing through my morning missives the other day, I came across a particular cry for help from a Mr Gordon Sharman, who seemed to be having trouble with one of my fave games of the last couple of years, namely *Myth*. This is what he says:

'Help! I have an Amstrad 6128 and one of the many games I have is Myth. I have gotten to stage two, but I can't get past the nymph or the three-headed skeleton-dragon. What can I do?'

Yours faithfully
Gordon Sharman

Well Gordon, your letter is a trifle confusing, as you don't specify whether the nymph in question is the Gorgon in the cavern or not. If you are referring to the first nymph on stage two, then you must have got past her to spy the dragon. That said, I'll take it as read that you mean the Gorgon.

What you need to do, is hack away at the statue of Achilles at the beginning of the stage, and then at the next statue as well, to get hold of the bag.

Going down into the Gorgon's lair, use your shield to deflect her missiles, then jump deftly from column to column, avoiding her blasts at all times, until you are standing next to her.

Wait for the correct moment, then slice off her head. Nasty work, eh? When that's done, use the bag to collect her head, get the sphere and high-tail it outta there.

Confronting the dragon is tricky but, using the Gorgon's head as a weapon to take out each individual head, one at a time, should bring you success and the final globe. Now go hunting for the teleport key down in the cavern again, and you're on your way to level three. Good luck.

There, I hope that's helped you, Gordon, and any others who may have been stuck on that particular point. Myth really is a great game and full of surprises to keep you guessing.

Moving on quickly to some helpful clues concerning MicroProse's *Pirates*, we have a very bold letter from Rachel Jones, who lives in a small outback of the Universe called Lancashire.

Now, according to Rachel, when you attack a town in this excellent blast, there are times when all of the gold has been hidden. To avoid this, you must attack a town by land, march by land to another town, attack that, then march back to the first town. Attack this town by land again and all of the gold should be plundered by your hearty crew.

Also, if you fancy becoming a King's Advisor at the end, you must only marry the women who are being courted by a Duke. Fancy that! To help you do this, try picking wit and charm as your special skill. Using this, they will fall for you when you are still a measly Major, and nowhere near a Duke. If you think you can cope without fencing skills, this seems to be a pretty good option to me.

For that vital piece of information, Miss Jones would like me to send her the princely sum of £100! Well Rachel, how does a pound of warm tripe grab you instead? No? Oh well, some people are never satisfied, are they?

Ok folks, hold onto your hats. It's Multiface time again. The following selection of juicy pokes were sent in by Lee Rouane of Woolley Moor, and should help you out on a whole host of excellent offerings. Take a look through them and see where they can help you out.

GAME	ADDRESS	POKE	EFFECT
Chase HQ	&2053	&C9	Infinite time
"	&3872	&00	Infinite turbo
Turrican	&04F0	&00	Infinite energy
Rainbow Islands	&1C1E	&00	Infinite lives
X-Out	&4882	&00	Infinite lives
Altered Beast	&09B9	&00	Infinite credits
Count Duckula	&37C0	&00	Infinite time
Ninja Massacre	&8A38	&00	Changes walls to end of level goal
Star Wars	&4515	&00	Infinite shields
Empire Strikes Back	&0746	&00	Infinite shields
BombJack	&028D	&00	Infinite lives
Shinobi	&3758	&A7	Infinite time
Nightbreed	&04CF	&00	Infinite lives
Ghouls N Ghosts	&314B	&A7	Infinite lives
" " "	&54B1	&00	Infinite time
Dynamite Dux	&8B07	&A6	Infinite lives
" "	&8B77	&A7	Infinite credits
Aliens	&1B8D	&00	Infinite fire
Howard the Duck	&329C	&00	Infinite time

How's about that for some new-found blasting power? Well done, Lee and thanks for letting us in on your secrets. By the way, the first five pokes are for the Power Up Compilation and all of the pokes should work on both disc and tape, using your bejewelled multifaces.

Whoever said that we don't cater for everybody? What utter rot! Why not cast your eyes over our excellent map to see for yourselves.

As we all should know by now, pressing down the keys E,D,2,0,9 on the first four levels of Batman the Movie, will skip you to the next level. Naturally, this doesn't work on the final level, so Tom Ash of Bingley has very kindly supplied this handy map to fill in that final gap.

There are many routes to take, but this one is the quickest and, if you want to stop the Joker from escaping, you must walk as fast as you can to the right, when you get to the top of the level. To kill off the Joker, shoot your batrope diagonally when he is near the top of the ladder.

Not bad, what? Ok, now for a couple of neat keypresses to keep you all on the edges of your seats. Ever played Grid Iron 11? Epic stuff but, if you want to get your hands on some extra spondooliks, just try typing in C.Pickles on the name chart and your cashflow problems should be solved.

On an even niftier note, try typing in the following in direct mode:

POKE &AC03,&C0:POKE & AC02,&90: POKE &AC01,&C3

Press enter and you should get the ready signal. Now, instead of running your game, try loading it. All being well, when the game has loaded, you should be able to list and amend the listing to your advantage.

This little gem was sent in by Terry Buckland of Cheltenham, and actually works on *Soccer Boss*. It should work on most of the earlier 464 games, but try it for yourself and see if you can get some of the more modern ones to comply.

Before I drift off into the great wide open again this month, there may just be space to squeeze in another Smith item. This time, Graham's sent in a goodie for Kwik Snax on tape, so type it in, load your game and get chomping with infinite lives.

```
1 'Kwik Snax (tape)
2 'By Graham Smith
3 'Infinite lives
4 '
10 DATA 11,00,40,43,cd,77
20 DATA bc,21,0f,be,22,49
30 DATA 40,eb,e9,3e,a7,32
40 DATA fe,29,c3,40,00
50 FOR j=0 TO 22:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+48640,x:NEXT j
80 IF y<>2370 GOTO 100
90 MODE 1:CALL 48640
100 PRINT"data error
```

That's yer lot, folks, time to go again. See you all next month but, in the meantime, remember not to speak nicely to strangers and don't speak strangely to nicers although they probably wouldn't understand anyway. Never mind, it's the thought that counts.

THE DUNGEON MASTER

DM welcomes the converts and announces some exciting new offerings.



I was speaking to a Spectrum owner the other day and he was seriously considering buying a CPC instead. As this chap was a confirmed Speccy fanatic (aren't they all?), I was to say the least - slightly surprised. When I enquired as to what had brought about this sudden dawning of enlightenment on the better things in life, it turned out to be because of the demise of the Spectrum adventure market compared to the huge volume of adventures being released for the CPC. I am delighted by this news, for it not only shows that we are keeping existing CPC adventurers happy with new releases, but that we could very soon be gaining new users from other computers. Well done to everybody that is helping to bring this situation about.

Two more adventures have been released this month by WoW Software, one new and one re-release. The new one, called *Talisman of Power*, is by C Bury and costs £2 on tape, £4 on disc. Re-released is *Videoworld* by Graham Parry. It is in 2 parts and can be had for £3 on tape or £5 on disc. For some reason though, the disc version will only save to tape.

Peter Clark (the author of *Escape from Prison Planet*) writes to say that his second adventure is nearly ready for release — it will be called *Hounds of Hell*. Apparently it is a story of black magic (no not the chocolates, the other sort). Can't wait Peter.

REVIEWS

Jim Struthers has been helping me to review the ever growing pile of new releases that land on my doormat every month. Jim is one of those rare breed of players who seem to be able to fly through obstacles and finish a game, whilst normal people are still reading the instructions. I am therefore grateful to him for providing the following reviews. Both adventures are written by Simon Avery and are available from WoW Software, 78 Radipole Lane, Weymouth, Dorset DT4 9RS. Price £2 cassette, £4 disc. (Cheques/POs made payable to J G Pancott.)

PRISON BLUES

This is an adventure that is written by Simon Avery who, as most people who play adventures will know, writes most of his games for the Public Domain. However, for a change he's decided to release this and a couple of others via WoW Software at a small price. Simon has opted to use the *Quill* to write it and has done a superb job using this utility. Text only and not a huge game by any means, it is really refreshing to play. To cut a long story short, the plot is as follows: You are in prison and you have to escape from your cell and then proceed to the outside walls - and freedom. A basic story really but it's by no means a basic game. The puzzles are very logical but some are very well hidden. The odd piece of humour is incorporated to amuse you on your travels. As always there is Simon's customary squirrel and examining it gives you a response as usual. Some of the puzzles are little gems such as the broom, the straw, the balloon, to name but a few. You can also dance, whistle or sing to the jukebox, if you so wish. I was enjoying this game so much that I was very sad when it ended. Simon writes highly entertaining adventures and they are very good value for money. Highly recommended.

TOTAL REALITY DELUSION (TRD)

Having previously played and enjoyed *Prison Blues* by the same author, I was eagerly looking forward to reviewing TRD. Written once again using the *Quill*, it is a text only adventure and once again great fun. However it is a completely different type of adventure. The story is set in a rather surreal world and extraordinary things can be seen and done. It is worth trying to do anything even though it may seem stupid to do so. As the title of the game suggests, you don't know what is real and what isn't. To give you an idea of what I mean, there are such items as a chocolate door, an acrobatic woodlouse, trees dancing to music from a ghetto blaster and even a dehydrated bridge! These are just a few of the oddities in this game but what great fun they are. It may seem odd when you start playing but you will soon find that all the puzzles are well thought out and logical. Make a note of all the objects carefully and listen to what some of them have to say. The text also includes some very helpful clues. Once again, a highly enjoyable adventure from Simon and highly recommended.

Thank you Jim for taking the time and trouble to write those two excellent reviews.

Now would anybody else care to have a go at doing something similar?

HINTS & TIPS

An important event is about to happen in our humble pages. (Cue theatrical roll of drums.) We are honoured this month to receive an excellent selection of tips from none other than The First Lady of Playtesting, Lorna Paterson of Tillicoultry.

ADVENTURES OF ZEBEDEE GONIG

Feel the book: Photograph a poser:

Wear the glasses when examining the junk.

THE ANGELICUS SAGA (Part One)
Carpets often cover more than a floor: Give the prisoner a gift or two: Look under the bed and the bar.

(Part Two)
Bugs should always be removed from adventure listings: You could shatter a wall if you knew the correct word to say: Wait for the pirates to get drunk before netting them.

ESCAPE FROM PRISON PLANET
Look under the block and tip the pen-holder over to find useful objects: Make note of any numbers you see.

GRUE-KNAPPED!
Something is hidden behind the cupboard: Kiss the frog but not the princess: Jump on the opposition.

HELVERA - MISTRESS OF THE PARK
Mould and bake the clay: Find the missing piece to open the safe: Remove the polish from the chute.

MAGICIAN'S APPRENTICE
Say home for a short-cut: Sneeze at your enemies: Talk to a tree.

POWER CURSE
Talk to everyone and everything - they may help if you ask them: Twist the branch and hit the torch: Wear a disguise and push a couple of walls.

PRISON BLUES
Clean up the guard room: Trade with Mr Big: Hang your clothes up in the cloakroom: Create a hot dog.

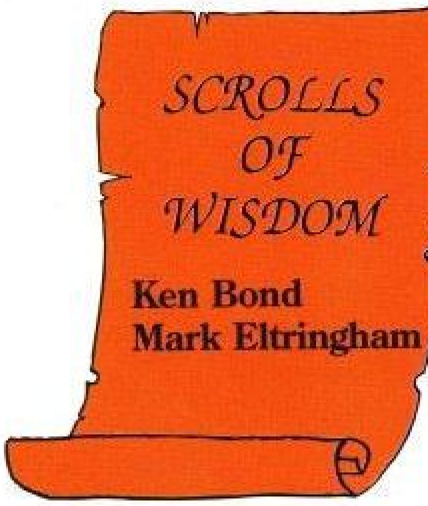
SEARCH FOR MITHRILLIUM
Cut the logs to bridge that gap: Follow the alien to safety.

SMIRKING HORROR
Freeze some water to make Arthur slip: Make a key move more than once to help you escape when trapped: Liven up your extra foot before reaching Moon.

TOTAL REALITY DELUSION
Dance among the trees: Try to grow your own music: Drop a woodlouse where his appetite will be satisfied: Give the squirrel the bird.

YARKON BLUES
You must use the shovel twice so choose your first site carefully: Swap two objects of similar weight: Pressing button B is not recommended: Imitate Tarzan at the bridge.

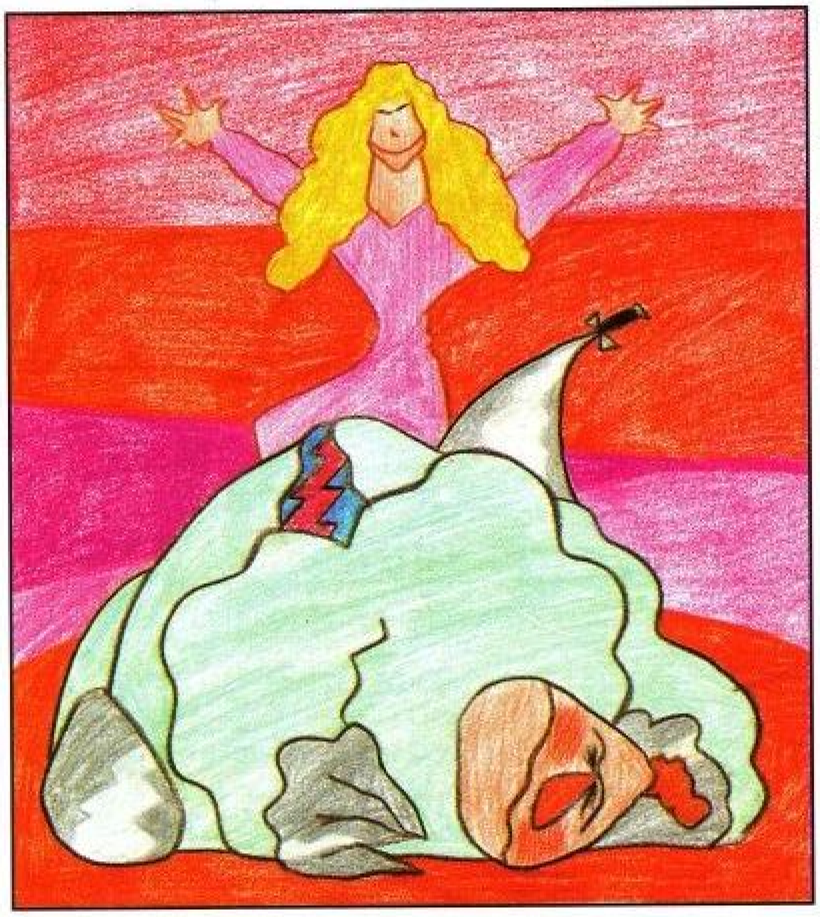
Well I hope that we've covered your particular problem in the above selection but if not, you should know by now what you need to do. Just write in and tell me the title of the game and where you are stuck. Then as if by magic, the answer will appear in these pages.



SCROLLS OF WISDOM
The following good people who are experienced adventure players, have kindly offered to help any readers who are having difficulty with a particular problem. Please do not ask for full solutions and treat the Scrollers with due respect. Either telephone them ONLY during the times shown or include a stamped SAE if you write to them.

Ken Bond, author of *The Test, The Base, The Island* and his latest, *The Spiro Legacy*, is willing to offer help on all of his own games. You can phone him on 0532 672278 or write to 17 Adel Park Gardens, Adel, Leeds, West Yorkshire LS16 8BN.

Mark Eltringham, 39 Gargle Hill, Thorpe St Andrew, Norwich, Norfolk NR7 0XX. Mark is able to help with an enormous list of games that he has completed: *Adventure Quest, Aftershock, Angelique, Apache Gold, Arnold Blackwood 1, 2 & 3, Ballyhoo, Beerhunter, Bestiary, Big Sleaze, Black Fountain, Black Knight, Boggitt, Bored of the rings, Brawn Free, Bugsy, Case of the mixed-up Shymer, Castle Blackstar, City for Ransom, Classic Adventure, Colossal Adventure, Colour of Magic, Cricket Crazy, Crispin Crunchy, Crystal Theft, Cursed be the City, Cutthroats, Dodgy Geezers, Doomlords, Dracula, Dungeon Adventure, D.A.A. Emerald Isle, Fantasia Diamond, Federation (Quan Tullah), Forest at Worlds End, Football Frenzy, Frankenstein, Galaxias, Gnome Ranger, Gold or Glory, Hermitage, Heroes of Karn, Hitchhikers Guide, Hollywood Hi-Jinx, Hunchback 3, Ichor, Imagination, Ingrids Back, Island of Chaos, Jewels of Babylon, Kentilla, Kingdom of Speldome, Knight Orc, Labyrinth, Lancelot, Life Term, Lords of Magic, Lord of the Rings, Lords of Time, Lost Phirious 1&2, Mircoman, Mindfighter, Mindshadow, Mordons Quest, Mountains of Ket, Mural, Mystery of Indus Valley, Necris Dome, Neverending Story, Panic beneath the Sea, The Pawn, Planet of Death, Price of Magik, Project Annihilation, Quest for Golden Egg Cup, Questprobe 3, Rebel Planet, Red Moon, Return to Eden, Rigels Revenge, Robin of Sherwood, Scary Tales, Scapeghost, Seabase Delta, Seas of Blood, Sharpes Deeds, Ship of Doom, Simply Magic, Smashed, Smugglers Cove, Snowball, Souls of Darkon, Spytrek, Star Wreck, Stryptiche, Subsunk, Talisman, Talisman of Power, Terrormolinos, Top Secret, Warlord, Werewolf Sim, Winter Wonderland, Wizbiz, Wolfman, Worm in Paradise, Zed & Zork 1.*

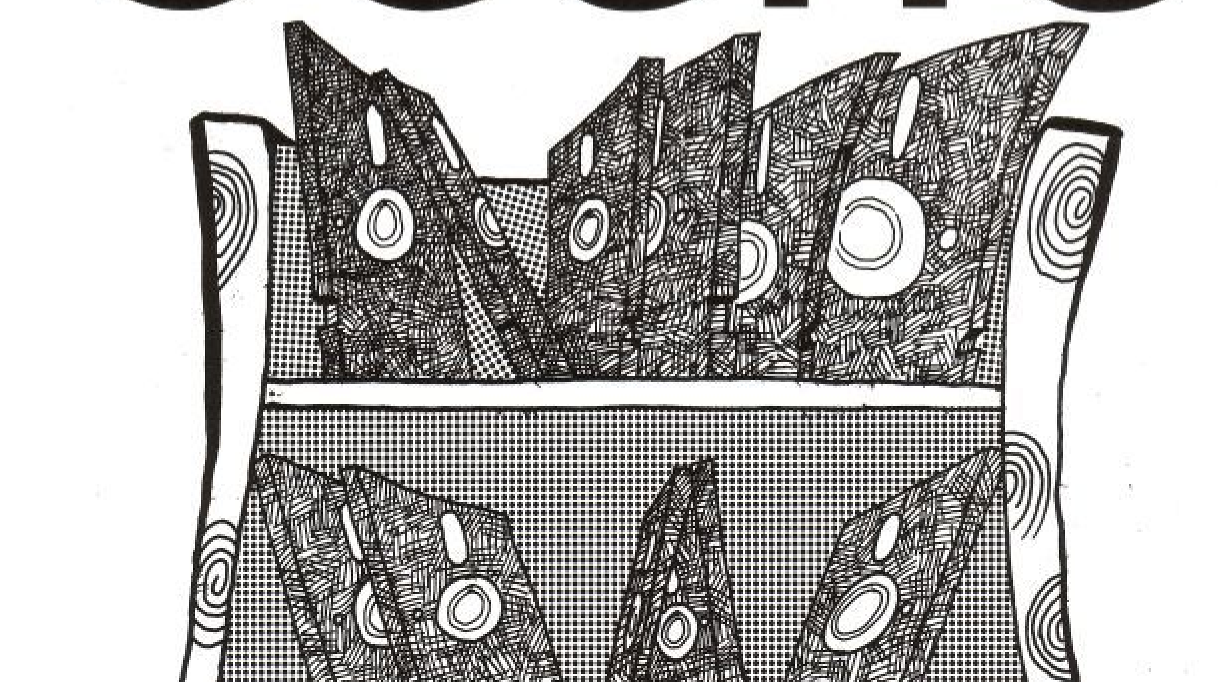


Until next month, happy adventuring folks.

Please send all correspondence, hints, complaints, money, etc to: The Dungeon Master, c/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

Whether you have any news, reviews or simply want to pass the time of day, my mailbox is always hungry, so be sure to drop me a line.

PD Scene



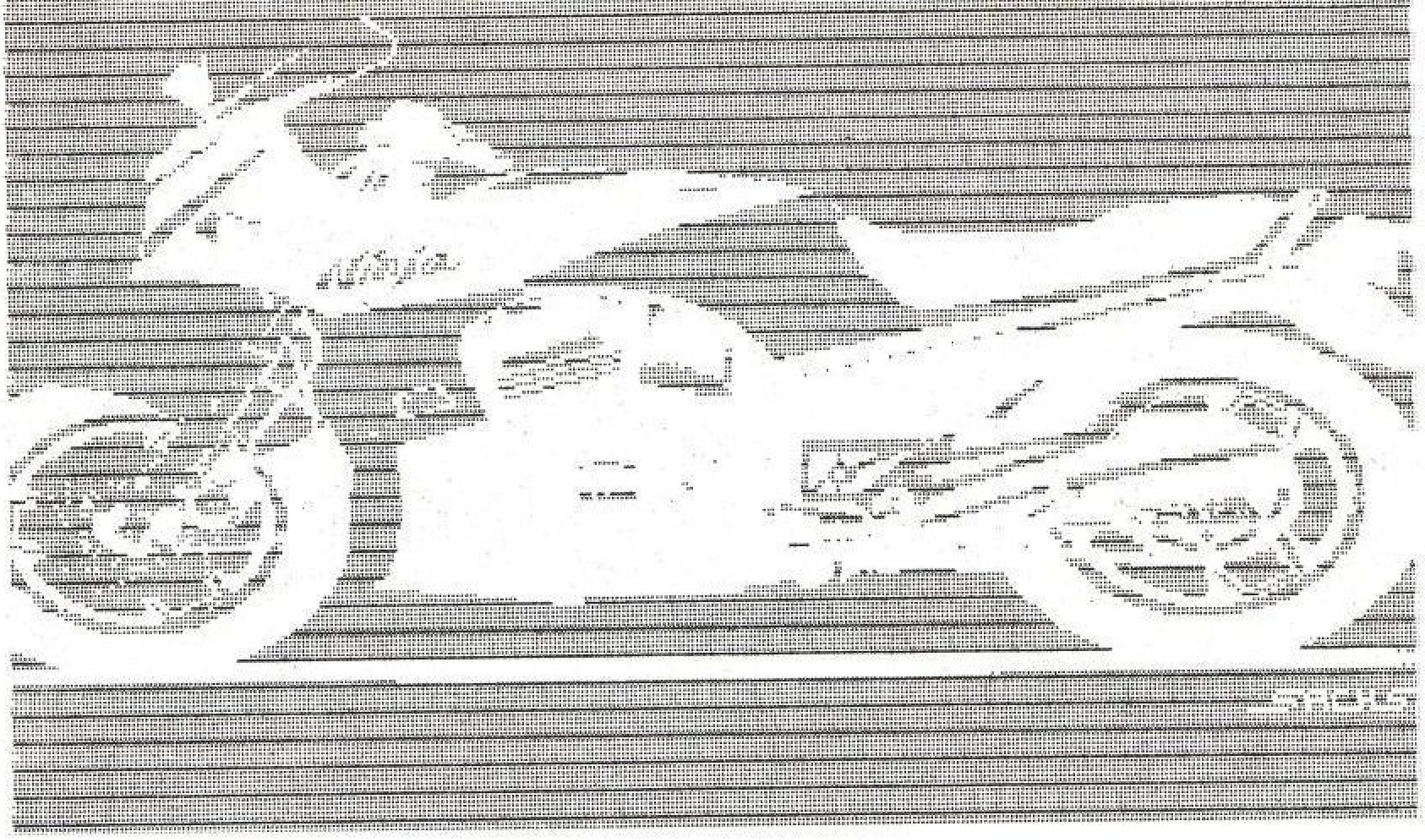
Uncle Bob is happy again as the mail starts to flow. Read on and find out why.

The response to my plea last month for a regular supply of programs to review has been fantastic, so thank you to all the PD libraries who have sent me discs and you can now rest assured that I can keep this column going for as long as you want me to. (Keep on sending the letters, folks!)

I'll start this month with one of the more unusual discs that I have received. It is from Penguin Sofware and it is called *PS 10-Amiga Graphics*. It is filled with forty nine (no, I don't know how they've fitted on 49 either) pictures representing some of the best Amiga artwork available. Amiga? Yes, that isn't a misprint. David Carter who runs Penguin, tells me that he has copied these pictures across from an Amiga and that they are on the CPC discs in digitised form and in Mode one. The copyright still belongs to the original artists so apart from making a very pleasant slide show to while away a few minutes, I'm not too sure just how useful this disc really is. It certainly is impressive though. Now if only we could reproduce the 4096 colours as well! I suppose the one thing that this disc really lacks, for yours truly, is a document file explaining how it was done. It is all very well being extremely clever like David obviously is, but I would have welcomed the chance of learning some of his tricks. How about spreading your knowledge and helping to educate the masses next time David?

Like all of Penguin's discs, this one can be obtained by sending your own disc with a SAE, plus £1 to cover the copy charge. A catalogue of all the library contents is available free of any copy charge on to your own disc. There appears to be something for everybody with the usual mixture of utilities, demos and games. Good value for money and I look forward to receiving some new programs that David says are in the pipeline. I also received a copy of a weekly newsletter entitled PSLatest. This is a single sheet of A4 and contains news and gossip (and some awful jokes!) from the world of public domain. It is available for the cost of an SAE.

Dartsma PD Library is different! Adam Shade, Dartma's chief librarian is a man with a mission. What he is setting out to do is to provide a library of public domain programs that are of particular interest to 6128 PLUS machine owners. I run a normal 6128 and most of what Adam has sent me so far has behaved perfectly on my machine, so I am unable to report what extra functions his software contains that the Plus machines can take advantage of. The only program that I have had any doubts about is one called *Madonna*. It is a digitised songs program that was written by Digitized Reality and is on DPD (sides) 60 & 61. Now all I could get through the tinny speaker of my 6128 was a load of screeching that even the most fanatical Madonna fan would never describe as music. This could be where the improved sound capabilities of the Plus machines would come into



their own. The other thing that bothers me about this disc is the copyright position, regarding whether it is legal, to copy and distribute recorded music in this way. I certainly wouldn't want to be on the receiving end of a lawsuit from either Madonna or her record company so I hope you've got it right lads!

The rest of the Dartsma collection looks very good and contains several demos, adventures and slide shows amongst the more usual utilities and games. Another disc that Adam sent me - DPD 42, included a few demonstrations of a commercial program called *Power Basic* by SPM Software. Now I usually avoid publicising commercial programs in my public domain articles for obvious reasons but I'll mention this one as a couple of the demos are playable games in their own right and are, of course, free. What is interesting is that you can play two versions of each game, one as a normal Basic game and again after it has been compiled by Power Basics. The affect of this is to increase greatly the speed and generally makes the games impossible! Definitely one for those of you with fast responses.

Prices are only 50p plus your own disc and if you are a Plus owner you can even get two selections FREE. Just tell Adam the serial number of your machine and send him a blank disc and SAE. You can even choose what type of software you'd like to receive and as they say, you can't say fairer than that.

LETTERS

Robot PD are claiming to be the biggest CPC Public Domain library with a collection of over 150 discs available. As if that wasn't enough, they also claim that at only 45p for a full disc, they are also the cheapest. Anyone want to argue?

Robot have also asked me to mention the Arcade Fantasy BBS. This is a bulletin board where modem owners can download PD programs from a special Amstrad area.

Edmund Spicer from Littlehampton has written to ask if I would mention that he has written several adventures for the public domain and that they are all available from Data PD. Certainly Edmund, consider it done.

Richard Fairhurst has asked me for my opinion on 'a public domain library' (I have not named it here but it is not one that I've heard of), that is offering payment to authors to write programs for them. Richard feels that this is a bad thing and fears that the costs will be passed on to the users (you) and put the smaller libraries who cannot afford to pay these fees, out of business. I agree with Richard that this is contrary to the general spirit of public domain but if you have anything to add or another point of view, then please write in and tell us.

Almost finally, Alan Scully of Scull PD has complained that I haven't mentioned his library lately. Well it's quite true that I haven't and it is because you haven't sent me any programes to review, Alan.

As usual, I'll finish off with a list of the libraries who have contacted me and sent in examples of their programs and/or a catalogue. If you are a Public Domain library or you wish to recommend one or even a particular program, then I'll be delighted to hear from you. You can contact me care of ACU at the address on page 12.

Adventure PD
10 Overton Road,
Abbey Wood,
London SE2 9SD.

Data PD Library
202 Park Street Lane,
Park Street,
St Albans,
Herts AL2 2AQ.

DW Software
62 Lascelles Avenue,
Withernsea,
North Humberside HU19 2EB.

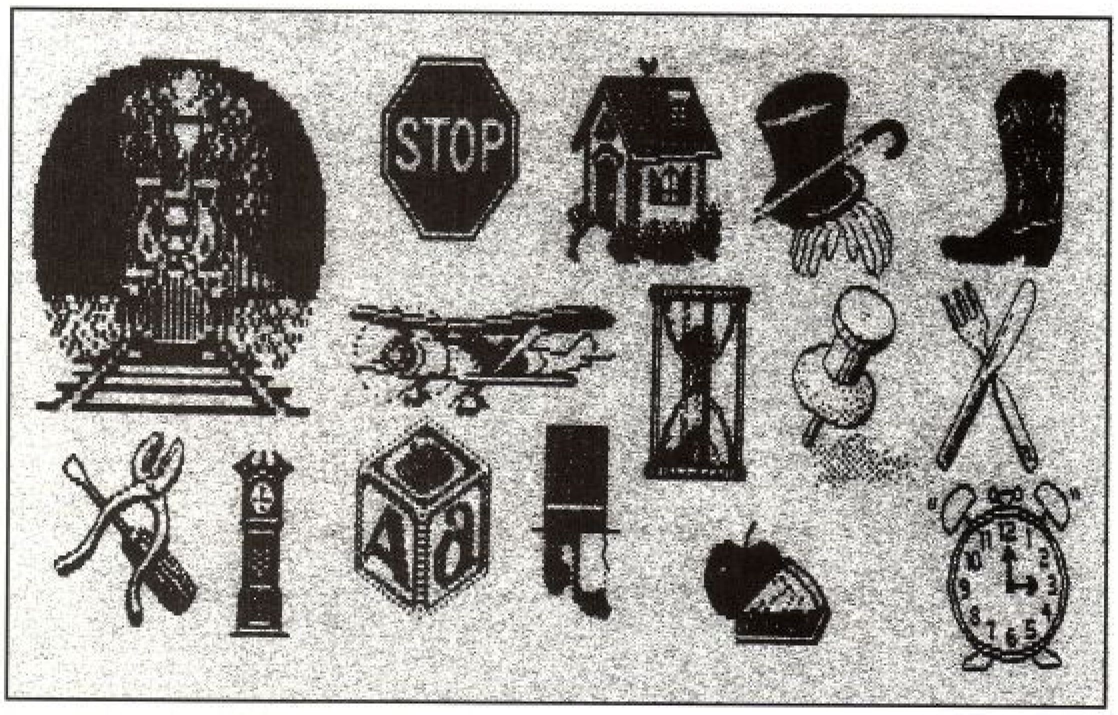
Penguin Software
Ruxley House,
28 Mount Hermon Road,
Woking,
Surrey GU22 7UH.

Robot PD Library
2 Trent Road,
Oakham,
Rutland LE15 6HF.

Dartsma PD Library
C/o Adam Shade,
47 Kidd Place,
Charlton,
London SE7 8HF.

For those of you with a modem, you can try down-loading some free programs from the CPC areas on:

Maxwell House 071 828 1577
Arcade Fantasy 0533 376056 (8pm-8am)
Preston Ros 0772 652212
Have fun, Bob Adams.



A DAY IN THE COUNTRY

In which Chris Knight unearths the hi-tech energy of SD Micros in the rural backwaters of Lincolnshire.

You don't have to be a millionaire to make the desirous move out of the smoke and into the picturesque countryside nowadays, but it certainly helps. The other alternative, of course, is to find that little niche in the market and work at it.

I think Steve Denson, the brain behind Lincolnshire based SD Micros, would forgive me if I were to say that he probably falls into the second category. After all, in this day and age, there aren't too many people who are going to break the banks in the CPC world (apart from Amstrad themselves, maybe). However, a brief glance through the ever increasing SD stock list should show that Steve Denson has, indeed, found that niche and right now is working at it like crazy, to our advantage.

Steve Danson seems to be one of that rare breed who can spot a gap in the market from a mile off but, as he will testify himself from his early years in business, spotting a niche is one thing, making it profitable is a totally different ballgame.

Back in 1983, when the CPC was still on the drawing board, SD Micros was pretty much a part time affair, producing business programs predominantly for the Spectrum.

"It was certainly an uphill struggle," Steve admits: "The problem was that there were no interfaces, no disk drives and nothing standard at all in those days!"

To make any kind of headway in the early years was certainly a difficult task and it must have come as something of a relief to most software producers when Arnold finally came rolling off the conveyor belt and onto the shelves, armed to the teeth with an 80 column screen and CP/M Amsdos.

Even so, it was still some time before retailers could be convinced of the CPC's versatility, aimed as it was at the games and leisure market.

Steve Denson remembers those early days all too well, as he ruefully states: "If you had asked for serious CPC software in the beginning, you would have been laughed out of the shop."

In spite of this, SD Micros forged ahead, producing its first utility for the CPC in 1985, in the form of Small Trader. It is a sign of the changing times that this incredibly successful package is still available to date, with the CPC itself firmly established in the world of serious home computing.

Attesting to the long-running success of SD's first product, Steve Denson says: "SD has never attempted to produce general software. It's a bit like the music market and the difference between singles and LPs. People will play a game and throw it away, whereas we sell longevity: people use out programs again and again."

That is a fact. Producing high quality programs at low prices, SD software has consistently proved popular with users, the biggest selling article being Page Publisher, recently given a whole new lease of life with mouse compatibility and a complete bank of clip-art illustrations.

Retailing at just £14.95, Page Publisher has to be one of the most powerful DTP packages around for 6128 or expanded 464/664 owners. Simple to use, this icon/menu driven package handles both text and graphics layout, allowing documents to be designed from a single program.

With the new mouse update coming in at an incredible £5, and the selection of over 400 drawings on the clip-art disk at just £12.50, or £15 for both, SD Micros is certainly living up to its low cost reputation, while the quality of the program, as users will verify, goes without saying. As the clip-art disk is now also available to Stop Press users as well, SD certainly can't be accused of leaving some CPC users unilluminated!

There are also some brand new leading lights on the small business front, with a host of releases now on the market, specifically tailored for usefulness and value for money.

Home Finance, at a mere £14.95, is designed to help you keep an exacting record of all your personal incomings and outgoings. Capable of handling up to 30 different accounts, along with up to 150 transactions per file with archive facility, it has to be one of the most powerful and complete personal finance packages on the market, on any format.

For those who need to keep an up to date record of their data, SD Micros' solution comes in the form of Kwikfile and Disc-Base, specialist databases for the price of a game at just £12.50 a piece.

With up to 18 variable length fields per record, cross-field calculation, fast search routine, alpha/numeric sort, automatic input of identical field entries and a choice of display and printing, Kwikfile's easy to use menu makes it a vital tool for all home and business uses.

For those of you with more discs than you can handle, Disc-Base is something you really can't afford to live without. Automatically reading all of your discs as you enter them, this excellent utility's fast machine code Search routine will find any file in under one second. Featuring automatic disc updates and the ability to hard copy or list CATs, this is one program that has to be used to be believed.

Are there any programmers out there who are feeling left out? Don't, because if you haven't got hold of Multi-Code yet, be sure to do so in the near future. Extending the standard CPC basic for a mere £12.50, Multi-Code is a comprehensive programmers' toolkit, featuring professional-style menus, simplified drawing commands, scrolling, screen dumps, double poke and peek commands and a complete set of printer commands for Epson compatibles.

With the main code occupying only 6K of memory, Multi-Code's versatility makes it indispensable to the serious programmer.

Still want more? Well, it seems that I picked a particularly auspicious time to visit Mr Denson at his Lincolnshire retreat, as I was able to see the very latest projects from the SD stable up and running for the first time. If you thought all of the above sounded appetising, then get a load of these.

Picasso should be ready for the Christmas market. What is it? Probably the best art package for the CPC to date, that's what it is. Using an easy to follow cursor control, some of the results from this package are truly outstanding, looking more like Amiga products than humble 8-bit output.

At just £14.95, Picasso comes complete with a machine code screen dump routine, Isdac, the Discus file manager utility, advance drawing tools and 12 fonts. Having just taken Picasso for a test run on my Plus machine, I can now confirm that it is compatible with all of the Amstrad machines and it's a corking program to boot.

Now then, what was that other thing in the pipeline? Ah yes, of course, the incredible 3.5" disc drive package, featuring 800k memory and five free discs. I told you, you would be impressed.

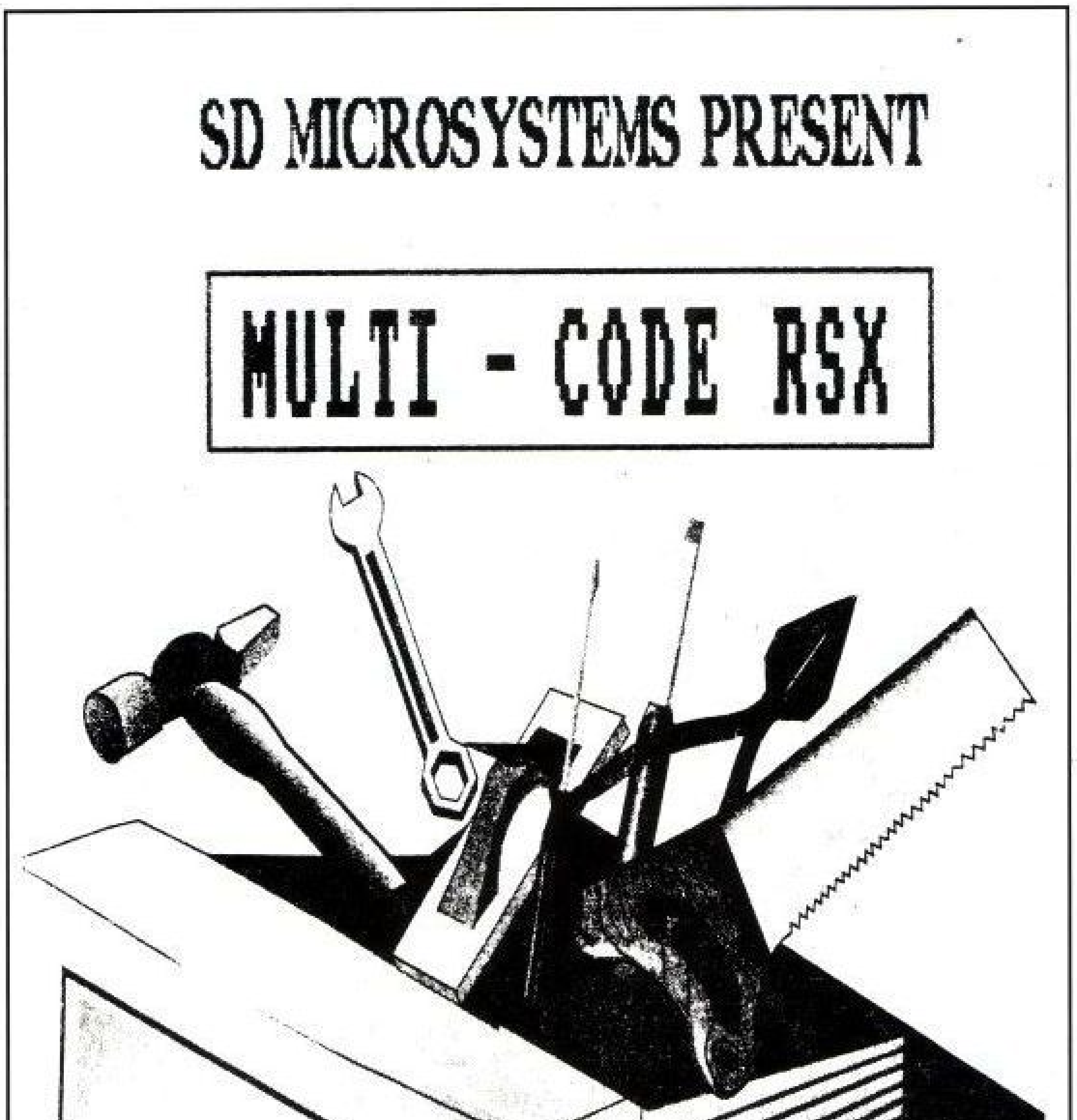
After months of heavy duty development, the brand new SD disc drive looks set for release in time for the Christmas market and, at only £79.95 for the complete package, looks set to become a firm favourite in the best seller stakes.

Doing away completely with the need for add-ons of any nature, this superb new, slimline drive, fits snugly to the back of your Arnold, giving easy and automatic access to drive b: and an incredible 800k of storage space. I don't really need to say much more about the package, except that its value for money and quality speak for themselves. This is one product you will need to find out more about and quick, before the first stock runs out.

Suffice it to say that the new disc drive is a fitting reminder of the ideals behind SD Micros, as Steve Denson stresses: "Our concept has always been to offer an alternative to mainstream PC computing. We have proved that it works."

Indeed it does. Who needs a PC to run a business or work from home when there is this calibre of CPC software on the market, which will do the job just as well, but at a fraction of the cost and complexity?

Long live the alternative and, if you fancy joining the 'resistance', your best bet would be to get in touch with Steve Denson and find out how he can help you to help yourselves



SD Microsystems
PO Box 24
Holbeach
Lincs.
PE12 7JF

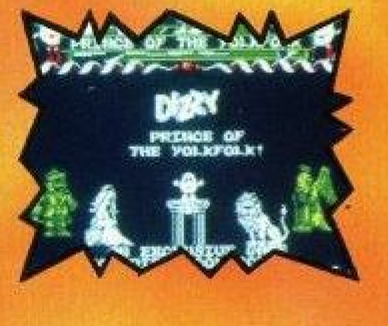
Tel: 0406 32252

Climb aboard as the ACU crew dons Lincoln Green to visit Dizzy-Prince of the Yolk Folk, attempts to underachieve to get to grips with Bart Simpson and battles for the future of Mankind alongside Arnie in Terminator 2.

BOMB ALLEY

DIZZY-PRINCE OF THE YOLK FOLK

A corking new compilation to set your Christmas tree alight.





THE SIMPSONS

Grab your X-Ray specs and beat off the mutants.

TERMINATOR 2

Hi-tech action in a frantic fight for our future.



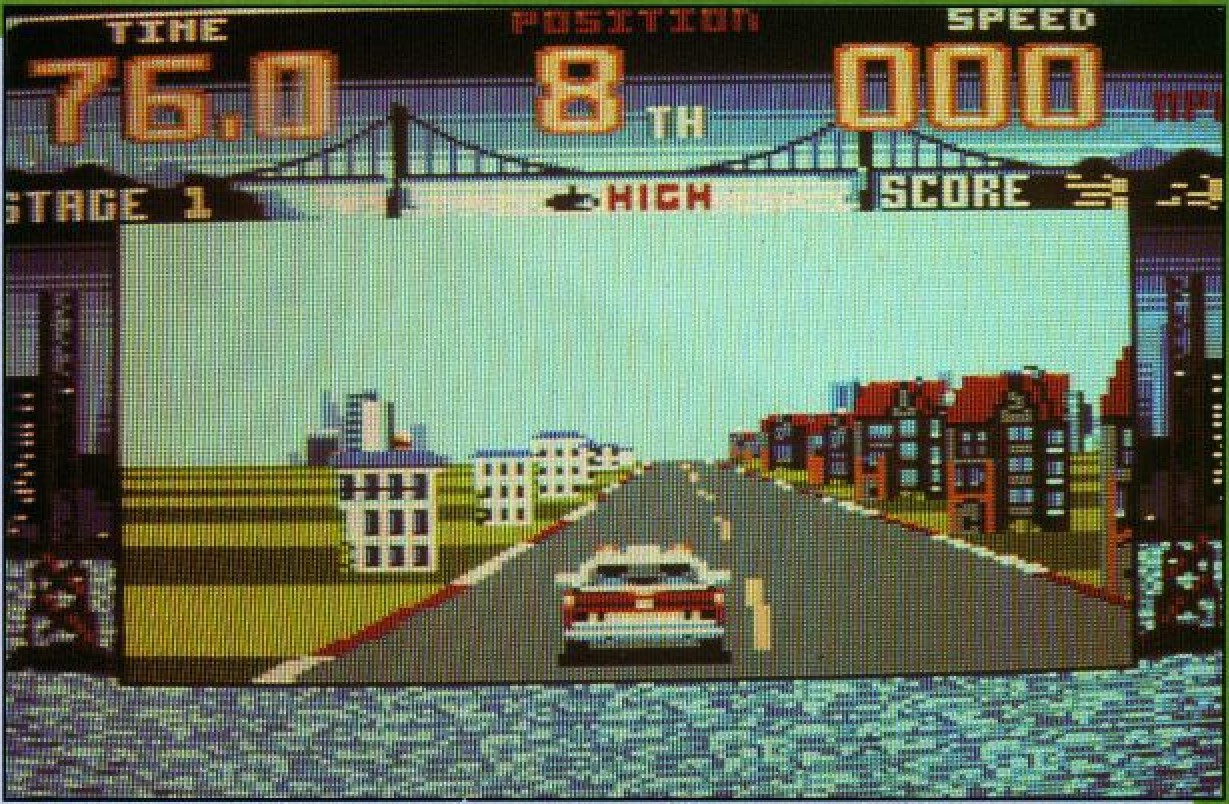
PLUS

More games goodies than you can cope with, featuring the best budget coverage around in your favourite CPC blast guide this side of Alpha Centauri. 'It's better than a Super Nova on Sirius IV.' – (Dan Quayle)

TOP 20

1 (NE) New Zealand Story
Hit Squad
2 (2) Bubble Bobble
Hit Squad
3 (1) Shinobi
Mastertronic
4 (6) Dragon Ninja
Hit Squad
5 (4) Dizzy Panic
Code Masters
6 (NE) Cabal
Hit Squad
7 (NE) Moonwalker
Kixx
8 (NE) Quattro Skills
Code Masters
9 (NE) Quattro coin-ops
Code Masters
10 (7) Quattro Cartoon
Code Masters
11 (3) Magic Land Dizzy
Code Masters
12 (5) Double Dragon
Mastertronic
13 (NE) The Match
D&H Games
14 (19) Footballer Of The Year 2
GBH
15 (15) Manchester United
Europe Krisalis
16 (11) Professional Footballer
D&H Games
17 (8) Cavemania
Atlantis
18 (14) Untouchables
Hit Squad
19 (9) Red Heat
Hit Squad
20 (10) Renegade 3
Hit Squad

Last month's position in brackets



Cisco Heat

If you're going to San Francisco, you'd better belt up – or else!

Do you remember that golden oldie of a cop series The Streets of San Francisco? If you do, then you'll probably recall some of those awesome car chase scenes.

San Francisco is renowned for its wicked road twists and bumps, in particular the famous Telegraph Hill. This lumpy hill has been used so often that it must be a familiar sight to most of us by now. Fancy a spin on it? Well here's your chance. Belt up and get set for one of the most spectacular race games to date in *Cisco Heat.*

The scenario? The streets of SF have been sealed off in preparation for the annual policeman's race through the city. The SFPC includes some of the meanest, toughest drivers around, getting daily experience from tailing crooks throughout their beat.

Your task is to get in there alongside them and beat them to the finish line. This is going to be some ride.

Faithfully reproducing all of the right bends and ups and downs of the city, Cisco Heat is a masterful simulation from the very beginning. The roadholding is fantastic and the collisions are totally realistic, just take care not to fall out of your chair.

Utilising some excellent mapping, you can be sure of your location at all times, as well as your position amongst the competitors. The main problem is going to be in keeping your eyes on the road, as the game features some superb 3D graphics and backdrops, not to mention the realistic sound effects that continually bombard your ears.



Getting off to a good start is all well and good but, the main test comes in the form of staying at the head of the field. Most of these drivers are hardened professionals and their pride is very much at stake on their home ground.

Things are going to get decidedly bumpy out there as the race progresses. If you can manage to keep your nose ahead of the field, you may be lucky enough to miss out on the rough and tumble. Give one of your opponent's the edge, however, and you could be in for a very bruising time indeed.

The controls are easily mastered and marvellously responsive, just be careful not to oversteer on some of the corners, or you could find yourself in some very embarrassing situations all round.

All in all, Cisco Heat is a real winner, and has to be rated as one of the best race simulations to date. If you fancy a taste of the real thing, give it a test drive and see it for yourself. Karl Malden and Michael Douglas eat your hearts out, you've got some new title contenders hot on your trail, and they are not going to give in too easily. Go get 'em, folks.

John Taylor

ROUND-UP

NAME	Cisco Heat		
FROM	Image Works	PRICE	Disc £17.99 Cassette £10.99
93%	92%	96%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



The Simpsons

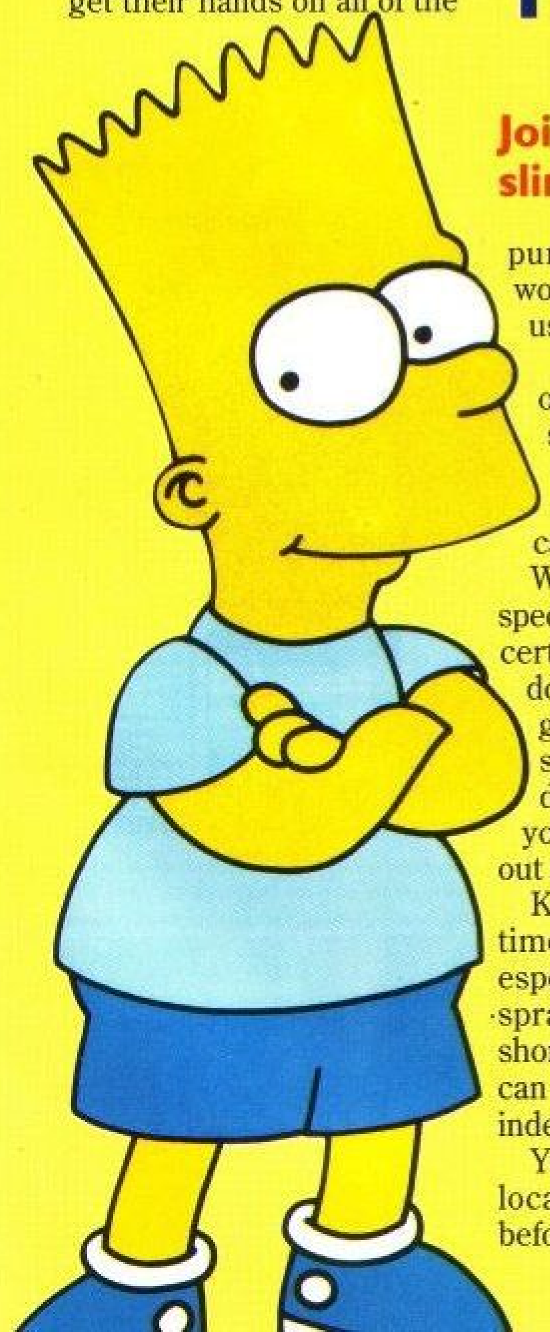
Join in as Bart goes up against the slimey space mutants.

Yo! Don't have a cow, man! This is the tale of an underachiever who's proud of it, but if he's the only thing between a mutant alien planetary takeover and survival, then I'm afraid you're just gonna have to get used to Bart Simpson.

In between eating his shorts and careening about the streets on his skateboard, Bart has noticed some very strange things going on recently, most importantly being the appearance of the mysterious purple objects.

Using his spectacular X-Ray specs, Bart is the only dude who can actually see the slime-ridden space mutants when they arrive, tastefully disguised as normal human beings. Normal? Heck, this is Springfield, don't you know.

What results, is a frenetic action blast set over five blistering levels, as Bart wields his all-powerful spray can against the alien menace. Basically, if the slimeballs can get their hands on all of the purple objects, then it's world domination for all of us.



You, as Bart, must get out there with your trusty spraycan and change the colour of the purple objects before the aliens can locate them.

Well this all sounds spectacularly simple, but it certainly isn't. The aliens don't give in that easily, so grab a hold of your slingshot and try and damage them as much as you can before things get out of hand.

Keep your eyes open at all times for power-ups and, especially, refills for your spraycan. Getting caught short at an important moment can be very embarrassing indeed.

You'll have to be quick to locate the purple objects before the aliens do and don't get caught without your specs, otherwise you'll be underachieving in a major way.

In between the action, there are a host of puzzles for you to get to grips with. Remember, you could trap Bart's IQ in a thimble, so give him all the help you can to solve the conundrums and ensure your progress.

Playing *The Simpsons* is a bundle of laughs, the scenario is pretty neat and there is plenty to do and see in good old Springfield. The colours are bright and the soundtrack won't bore you to death after the first five seconds.

Remember, you are the only one who can see the aliens walking around, so be prepared for some pretty mean stares from your friends and family. Never fear, however, everything you do is for the salvation of mankind and fellow underachievers.

Anyway, that's what you hope. Is all of this really happening, or has Bart finally gone totally over the edge at last. Methinks his headmaster would have something to say on that matter.

Whatever, take on the Space Mutants, it's far better than eating your shorts.

Jim Johnson

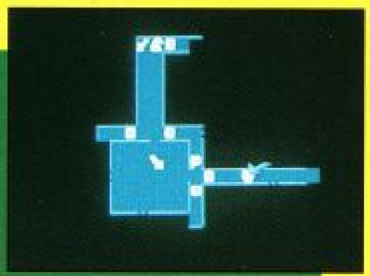
ROUND-UP			
NAME	The Simpsons		
FROM	Ocean	PRICE	Disc £17.99 Cassette £10.99
82%	80%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Return of the Witchlord

Hero Quest Part Two: The adventure continues...

Hero Questers rejoice! The second instalment of epic adventures has arrived and there is just as much excitement in this batch as the first lot. You have been warned.

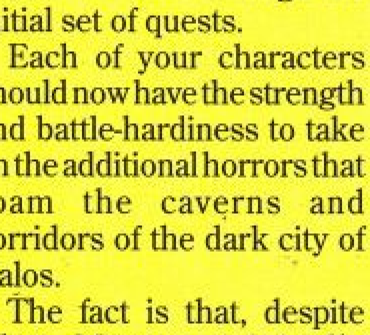
If you have already got the original Hero Quest adventure, then all you need to do to plug in to the next assortment, is pick the Load Other option on the initial menu and insert the Witchlords disc or cassette. From here on in, you're on your own.



If you haven't got the original yet, be warned, this additional offering will not work without it. Designed as an add-on, Return of the Witchlord has been set at a very much higher difficulty level than Hero Quest, the idea being that you should have created and coached your characters through the initial set of quests.

Each of your characters should now have the strength and battle-hardiness to take on the additional horrors that roam the caverns and corridors of the dark city of Kalos.

The fact is that, despite what Mentor originally believed, the Witchlord is not dead, and even now is planning for the return of his partners in doom Skulmar, Captain of the Dead Host, and Kessandria the Witch Queen.



Once these three cronies are firmly seated in their thrones, it is said that the bones of all fallen warriors will be summoned together under the Black Banner.

Ooer! I guess this is where you and your partners come in. Load up your favourite characters, get them kitted out with some new armour and another batch of handy spells and start trekking towards Kalos.

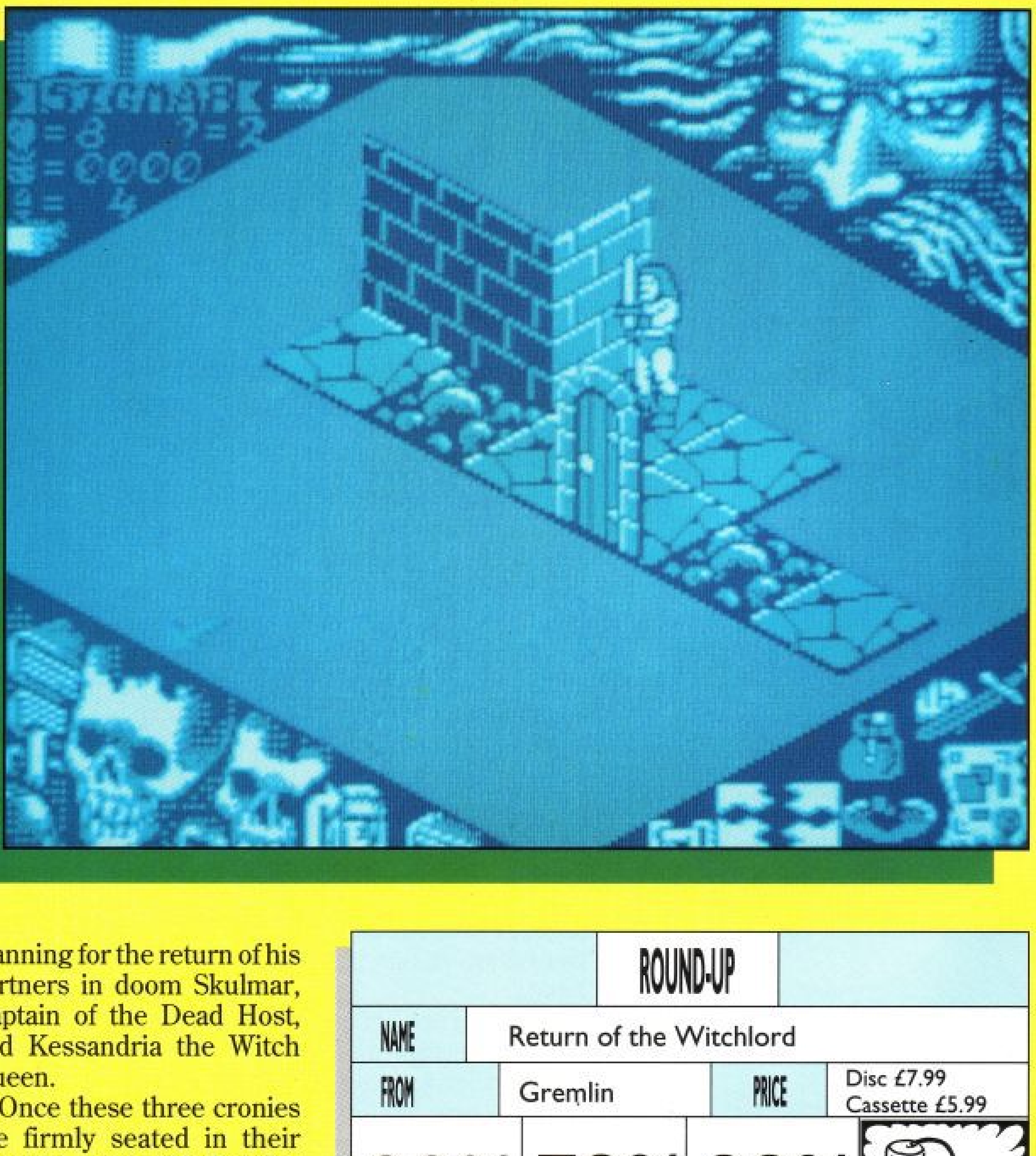
Like the original, there are a whole host of different adventures to take on in Witchlord, all devised to lead you to your ultimate goal of thwarting the evil trio's plans. Throughout each quest, you will meet bigger and nastier opponents than in your first outing and some of the bad guys have pretty firm defences. Basically, it isn't a good idea to split up straight away, as there will be many occasions when a joint attack is the only way to do away with the enemy.

Remember to stop and search at all times for treasures and secret doors, not forgetting traps and, above all, lose yourself in the suspense of the chase.

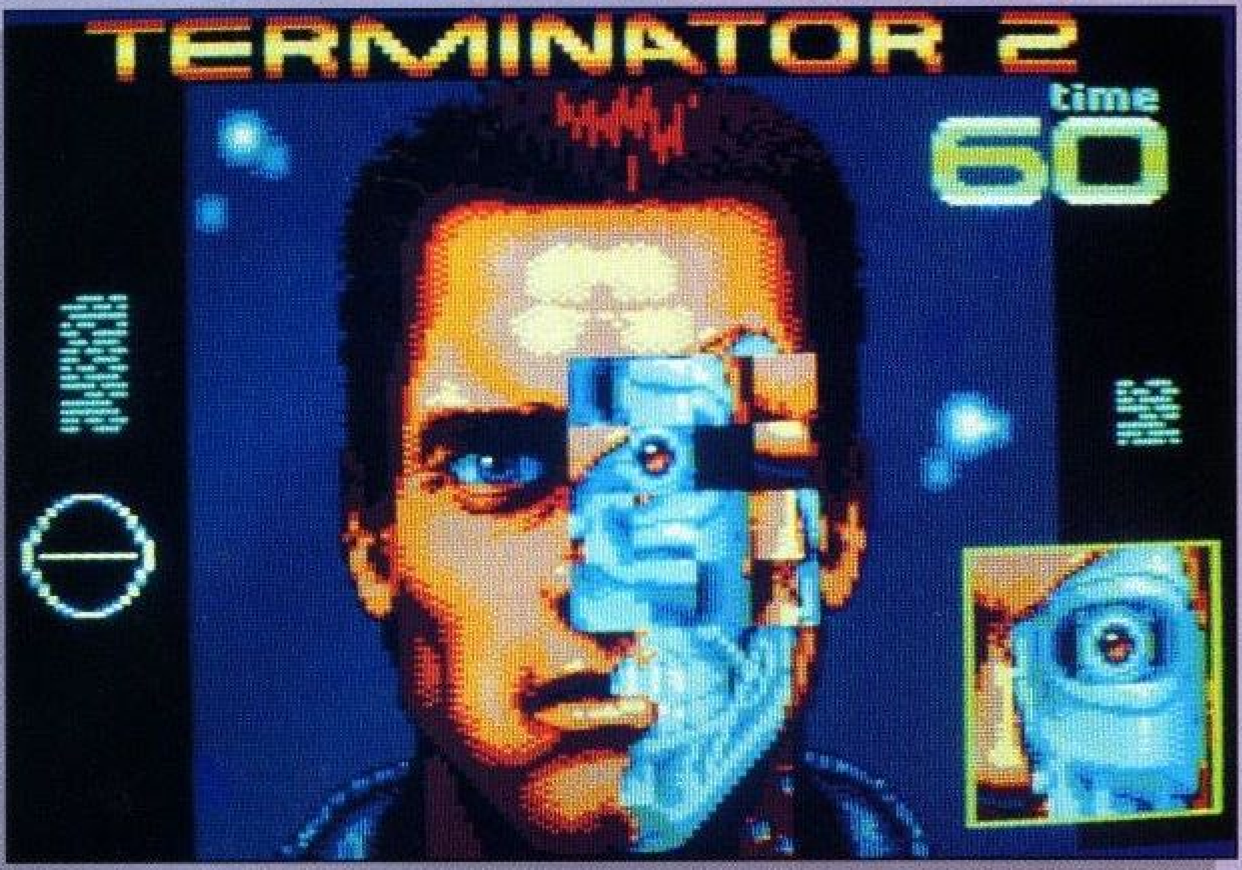
Featuring all of the effects of the original game, Return of the Witchlord is a stunning set of graphics based adventures, allowing you to do just about whatever you want within the city walls.

Extremely atmospheric, Hero Questers are going to love this add-on and, even if you haven't tried the board game before, getting hold of Hero Quest and its computer additions is an excellent introduction to simple adventuring. Great fun and guaranteed to hook you completely. Long live the Quest!

John Taylor



ROUND-UP			
NAME	Return of the Witchlord		
FROM	Gremlin	PRICE	Disc £7.99 Cassette £5.99
80%	78%	88%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Terminator 2

Hasta la vista, baby! Arnie's back, but this time he's the good guy.

It's not all that often that you go out to the flicks to see a sequel that is every bit as good as the original but, if you managed to sneak in *Terminator 2 - Judgement Day* recently, I think you'll agree that, especially as far as the special effects are concerned, there really isn't an awful lot around to touch it at the moment.



Getting used to Arnie as the good guy is the first shock, and one that sets the stock for the rest of the movie, from the breakneck chase to rescue mum from the looney bin, to the final, chilling confrontation in the steel foundry.

As you can imagine with a film licence, *Terminator 2,* the computer game, follows the movie plot very closely indeed and, despite the limitations of the 8-bit machine, there is still plenty of atmosphere packed into this non-stop shootie to keep you glued to the screen until the bitter end - if you get that far, of course.

Taking the role of Arnie, as the good guy, your task is to prevent the Mark 2 Terminator from getting a sniff at the young John Connor, the saviour of our future in the battle against the machines.

Beefing yourself up with a full armory will certainly help against this seemingly indestructible hunk of liquid metal but, if you're planning to get through all seven levels of this excellent blast, expect to take some pretty hefty damage on board.

To cater for this, you'll need to be pretty adept at the old wiring and circuitry game, in between the blasting. At various points in the game, you must stop to undertake repairs to your cybernoid systems, which need to be completed within a set time limit if you are to continue your mission.

All of this is going to take some getting used to, so be prepared to sacrifice a few John Connors first, before you feel you are ready to take the battle to the very limits.

If you have seen the film already, then you'll know just exactly what you can do to harm the new, souped-up Terminator. If you haven't, then use your wits to secure your environment and find anything you can lay your hands on, to stop his advance.

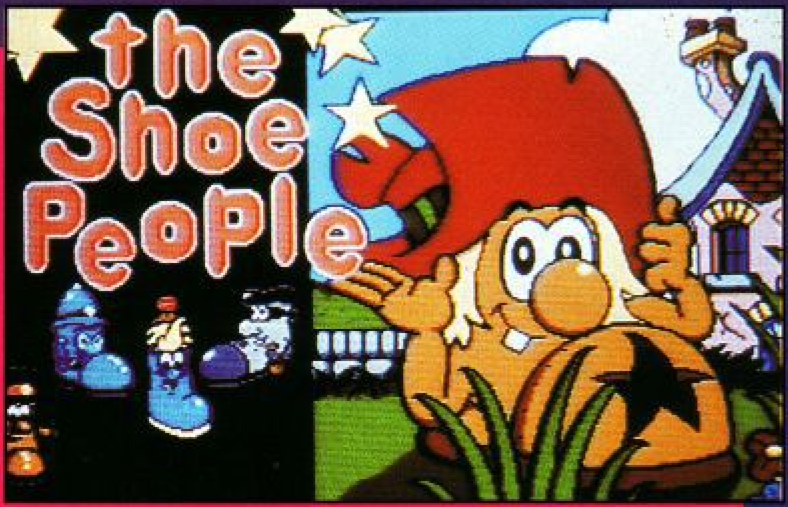
Cleverly designed, the screen is split into playing area, with the two Terminator heads in the bottom corners, indicating the respective health of each. Watch the bad guy's head closely to determine his state of affairs at all times.

All in all, Terminator 2 is a thoroughly enjoyable blast. Despite the limitations imposed by the film licence, there is still plenty of action, frenetic combat and puzzles a plenty to keep you amused.

The graphics are superb, the soundtrack definitely atmospheric and the scenario is chilling enough to seriously spook you. After all, it could happen you know, if you think about it. It's just a matter of time!

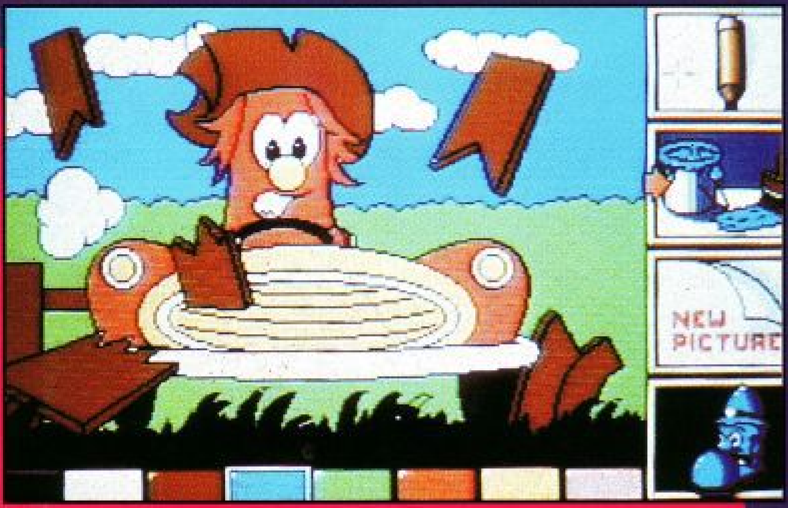
Jim Johnson

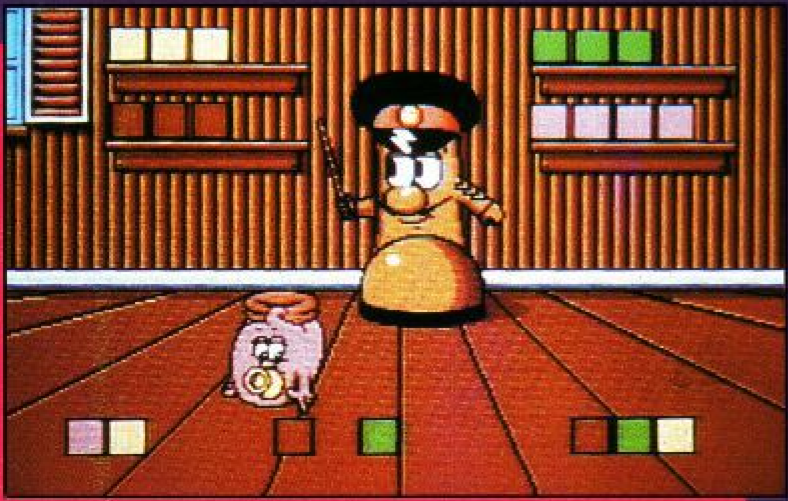
ROUND-UP			
NAME	Terminator 2		
FROM	Ocean	PRICE	Disc £17.99 Cassette £10.99
90%	89%	94%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



The Shoe People

Education is getting in on the act again with some favourites for the kiddies.





I don't care what anybody says, education is vital and starting early is definitely becoming more and more important, especially in this age of ever increasing technology.

Thankfully, the number of people who recognise this fact are also on the increase, leading to the exciting range of childrens' educational games now on the market: learning for fun on a computer has got to be one of the best starts a child can get before proper schooling has commenced.

One of the latest games houses to get in on the act is Gremlin, with a brand new label entitled First Class. The first offering on this exciting new label introduces some characters which are already household names with younger children, and is guranteed to be a major success in the fun learning stakes.

First Class with the Shoe People presents six different activities, designed to allow the child to play and learn on their own. Easy to master and with difficulty levels designed to increase as the child progresses, some parental supervision is required to set the child off, before they really get to grips with the fun themselves.

Trampy Visits His Friends, the first activity, encourages the child to match up a whole host of shapes, colours, words, letters and objects, using simple controls which the child can easily recognise.

Charlie's Big Day helps kiddies to sort out sequences and events, formulating an outcome from a series of occurrences, while Sgt. Major Sorts It Out is based upon classification of shapes and sizes.

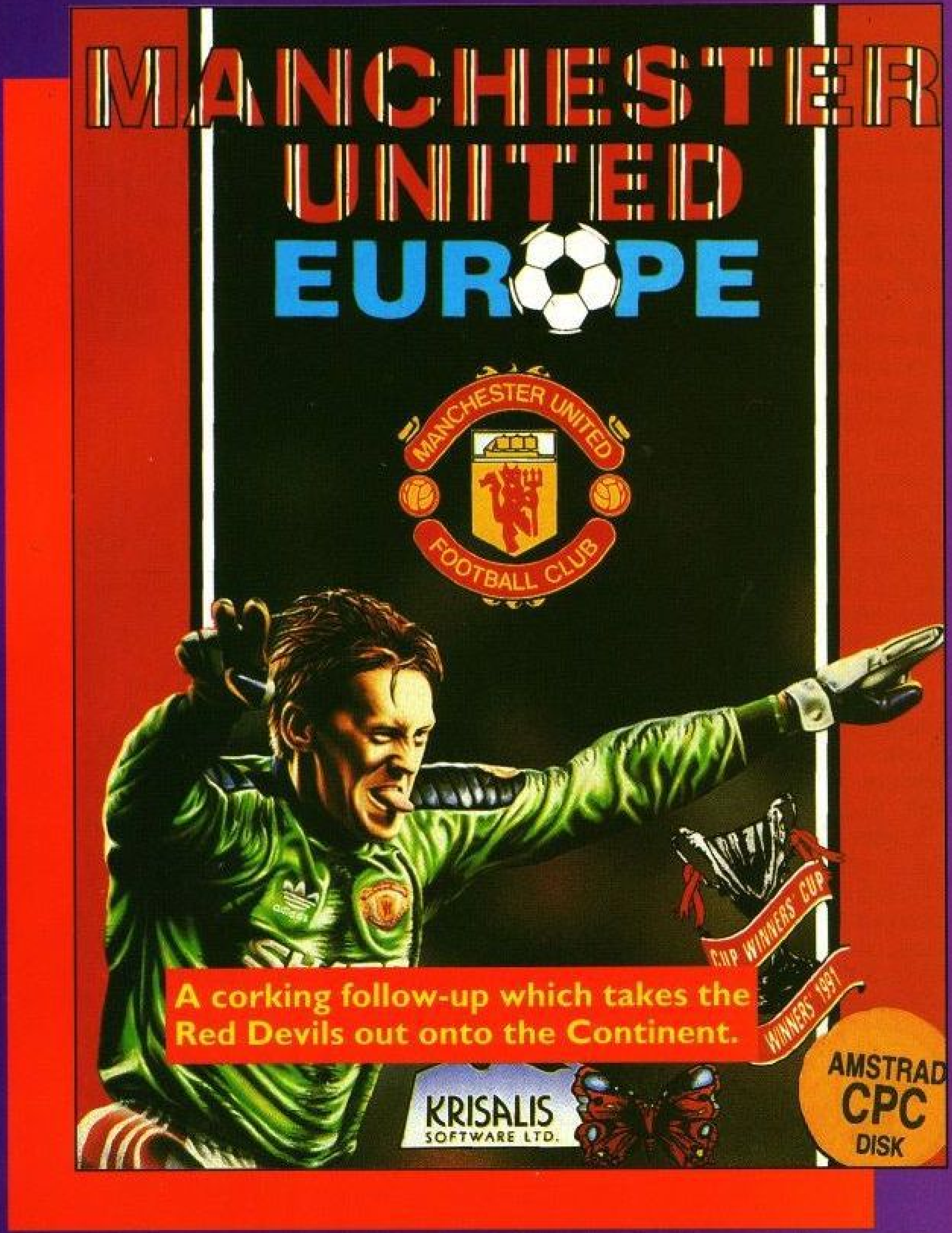
Covering an extremely broad spectrum of basic education, the child is asked to recognise letters and words in The Great Alphabet Robbery, with numbers and simple addition being taken care of by Wellington Goes to the Park.

All of the games are designed specifically to be fun to use, featuring colourful animation and special sound effects to reward the child for correct choices. Rounding off this first outing, is an excellent computer colouring and drawing game called Margot's Magic Colouring Book. Using lines, shapes and colours, there is virtually no limit to the fun, testing the child's imagination to the very limit.

Of course, not only do the games offer an excellent starting point for the many learning skills required by youngsters, but the activities are also devised to familiarise young people with computers and the techniques used to operate them, something that, in this day and age, is essential. The younger you are, the faster you learn, so to speak, and this is one excellent offering that'll keep young children happy for hours, testing their minds all the while.

Jim Johnson

ROUND-UP			
NAME	The Shoe People		
FROM	First Class	PRICE	Disc £15.99 Cassette £10.99
88%	87%	94%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



A corking follow-up which takes the Red Devils out onto the Continent.

Manchester United has always been one of the glamour teams, managing to stay in the spotlight at all times, regardless of its performances at home or abroad. Kicking off this season with yet another series of terrific wins, has again brought the closet followers out into the open, which makes the release of this particular blast very well-timed indeed.

Picking up where the original left off, this is your chance to take over the mighty Mancunians and do your worst against some excellent European competition in the European Cup, European Cup Winners Cup, UEFA Cup, European Soccer Cup and The World Club



Championships in Japan.

Is that enough for you to be going on with? It certainly should be. Starting off, you get the choice to play the arcade section only, which basically means playing the footie on pitch only, the management section only, which allows you to duck and dive to maintain a full strength team at all times, bargaining for transfers and watching for player fitness at all times, or a combination of the two, which is certainly a full time occupation.

Featuring a host of new options, the gameplay is superb, allowing you to put nifty aftertouches to all of



your shots, substitute players and put in some tremendous slide tackles.

Be careful though, for a mistimed tackle could earn you a caution, or even a red card. With an incredible 170 European teams to take on in all, there is certainly no lack of variety. There are even a few South American teams thrown in to add a little more spice.

On the management side of things, you have all of the MUFC favourites to choose from, keeping a close eye on their statistics and previous performances.

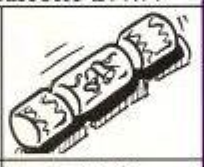
Tactics are important, so gen up before each match to make sure your set pieces are going to work and you can also vary the length of each match to suit your whim.

At any time during the game, a friendly match with any opponent can be arranged, to test your team's mettle, and you can also keep a constant update on your cup performances throughout. Very handy indeed.

Even more handy is the subtle cheat option, allowing you to duck out of the season at any time, should you feel that your performance is not up to scratch.

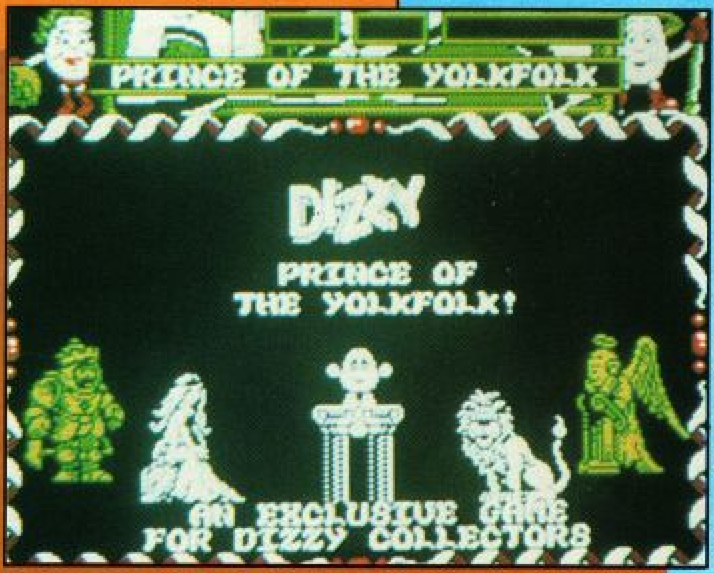
With the option to save and load games, improve your players' skills and with the refined on-pitch player controls, Manchester United Europe is a brilliantly conceived offering, taking into account all of the points put forward by users of the first blast, to create a well-balanced, fun-to-play footie bash that'll keep you busy for hours.

Jim Johnson

ROUND-UP			
NAME	Manchester United		
FROM	Krisalis	PRICE	Disc £15.99 Cassette £11.99
82%	78%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

BOMB ALLEY

Get ready to dance yourself dizzy, or whatever it is you like to do before switching on our favourite egg-shaped hero, because he's back with a vengeance in the latest blast to add to your collections.



Taking the lead role in yet another superb compilation of Dizzy escapades, Prince of the Yolk Folk is a superbly crafted adventure in true Oliver Twins style, which is guaranteed to have you biting your toenails off within a matter of minutes of switching your computer on.

Jam-packed with puzzles and conundrums, your task is to save the King's castle, as well as his beautiful daughter, from the wicked ways of the evil troll Rockwart.

The good king has wandered off to the Crusades somewhere, leaving his domain open to Rockwart's advances. You, Prince of the Yolk Folk, must save the kingdom from a fate worse than death, though it's going to take every ounce of your grey cells to get you into the castle, let alone finish off Rockwart.

Now, that old scenario of King gone to crusades and wicked person (or troll) taking over kingdom sounds a little familiar, don't you think? Absolutely, little Dizzy has got a real streak of Robin Hood in him, well-timed to coincide with the current movie scene and the host of Robin Hood toys that will be sure to abound in the toy shops this Christmas.

That aside, Prince of the Yolk Folks is a totally original blast, totally enjoyable and featuring masses of hidden extras which will need to be fathomed before you can get to the root of the problem in hand.

Talk to everyone you meet to gain invaluable clues, and be sure to help out those in need, as they will be sure to return the favour when you most need it.

Take care at all times as to what you are carrying, and keep your eyes peeled for the life-giving cherries. Remember, Dizzy can't swim, so you'll need to find something to pay the Ferryman to get across the Styx, and be careful at the perilous leaps over water, or Dizzy could well end up getting very damp.

Superbly crafted, with excellent graphics and sound effects, Prince of the Yolk Folks will prove to be a vital addition to your Dizzy collection. Only available on this special compilation, you can't beat it for value for money.

Joining the all new Dizzy bash on the collection is Dizzy Panic, the last Dizzy outing which also proved to be a chart buster. Helping Grand Dizzy to fix his toy making machine is no picnic, especially as the hydraulics are getting closer and closer at all times.

You'll have to be extremely quick to help Dizzy out with this one, so keep your eyes open, match up the falling shapes and be sure not to miss a thing, otherwise it's curtains for you and the machine. Just make sure the chutes stay as high as possible, and keep creating the toys to earn the high scores.

Three more Dizzy offerings complete this outstanding compilation so, if you like your adventure hard and fast, you know just where to come. If you haven't had a go at the early bash, Spellbound, then you don't know what Dizzy is all about.





DIZZY-PRINCE OF THE YOLK FOLK

Dizzy's back in yet another epic compilation for Christmas.

The same goes for Bubble Dizzy, two totally brilliant and zany offerings that are guranteed to keep you glued to your screen for many an hour. Again, you'll need all of your wits about you to complete these classics, even though many of you will probably be up to your ears in cheats and pokes for these Dizzy blasts by now.

Judging by the numerous calls to the Dizzy Helplines, however, it seems that there are just as many of you who are still stuck somewhere or other. Not to worry, I'm sure you'll find more clues inside this mag at some point in the near future.

Finishing off this all-round Dizzy bash, is the excellent Kiwk Snax. Kidnapped by the angry Wizard Zaks, the yolk Folk are trapped in the land of Personalities and only you can save them. Divided into four separate islands, you must complete the five levels on each to rescue a friend. Be warned, however, each island is teeming with Zaks' henchmen, and they mean you no good at all.

Cool Denzil has been left out in the cold in the Land of Ice, Dylan has been left to doze in the clouds, Grand Dizzy is in the hands of the clocks and giant teddies in Cuckoo Land, and poor old Daisy seems to have got the roughest deal of them all, trapped in Zaks' dungeon and guarded by his best henchmen.

Along your route, keep your eyes open for special bonusses in the form of fruit. Collect the fruit in the order they are flashing for extra special awards and take care to watch the special features that fall from the sky. Some help, but others do not.

Pick your island, dodge around the stationary blocks and be sure to push the sliding ones into the path of the henchmen to gather your fruit in this superb blast.

At the end of each level, you must take part in a special bonus challenge. It's slippery, it's slidey, and it's very, very difficult to get your bonus. Fighting against the clock, move off and you'll find you won't be able to stop until you hit something. Make sure you plan your moves well in advance to make it before time runs out, otherwise you could end up with a very sore head, indeed.



What more can you really say, each of the Dizzy games are best-sellers in their own right, and have always proved incredibly popular with young and old gamesters alike.

The new Dizzy blast looks every bit as good as its predecessors and heads up this compilation to make it a corking good buy for Christmas.

Each featuring stunning graphics and totally addictive gameplay, this is one compilation well worth queueing up for when it hits the shops.

Jim Johnson

ROUND-UP			
NAME	Dizzy-Prince of the Yolk Folk		
FROM	Dizzy Compilation	PRICE	Cassette £9.99
89%	88%	93%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

More full-price conversions to make your loose change twitch in anticipation

TOOBIN

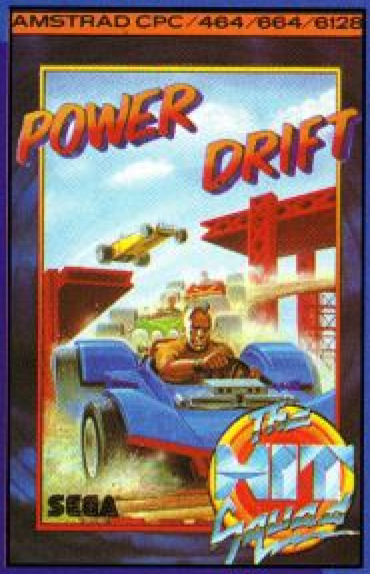
You Dudes, get your rubber rings at the ready and get set for some real white water action on some of the roughest river stretches on Earth and beyond! The aim of the game is to guide Biff and Jet down to the most outrageous party they can find, so jump aboard your ring, keep your eyes open for tin cans along the way to lob at the fishermen on the banks and go.

Paddling through the gates will earn you mega-bonusses, but watch out for logs, sticks and branches, which could seriously damage your paddling power. Lag behind and the big Gator will catch up with you, go too fast and the kamikaze penguins will nab you so, take it easy at first, get to grips with the controls and race for the finish line in this rootin', tootin' seriously rad ring game for one or two players. There's plenty to see and do and you'll certainly be hooked from the first push off. This is fun at its level best, so make sure you get a copy very soon.

POWER DRIFT

Serious burn up action is guaranteed in this blast, folks. Set over 27 excruciatingly painful circuits, your job is to get to the front and make sure you stay there til the bitter end.

Take your pick from 12 outrageous auto-jockeys, like Jason the Skinhead, and get your revs up for the start of the first outing. Timing is all-important in this bash, otherwise you'll find yourself high and dry on a mud bank and at the back of the pack. Each track is surprisingly different and there are plenty of obstacles for you to overcome before you take on the final night race and hit



the chequered flag. Take the corners carefully at first, but keep a close watch on the flags to announce their approach. Once you've mastered the controls, you'll be able to throw your buggy around at full tilt, gaining valuable seconds on the opposition.

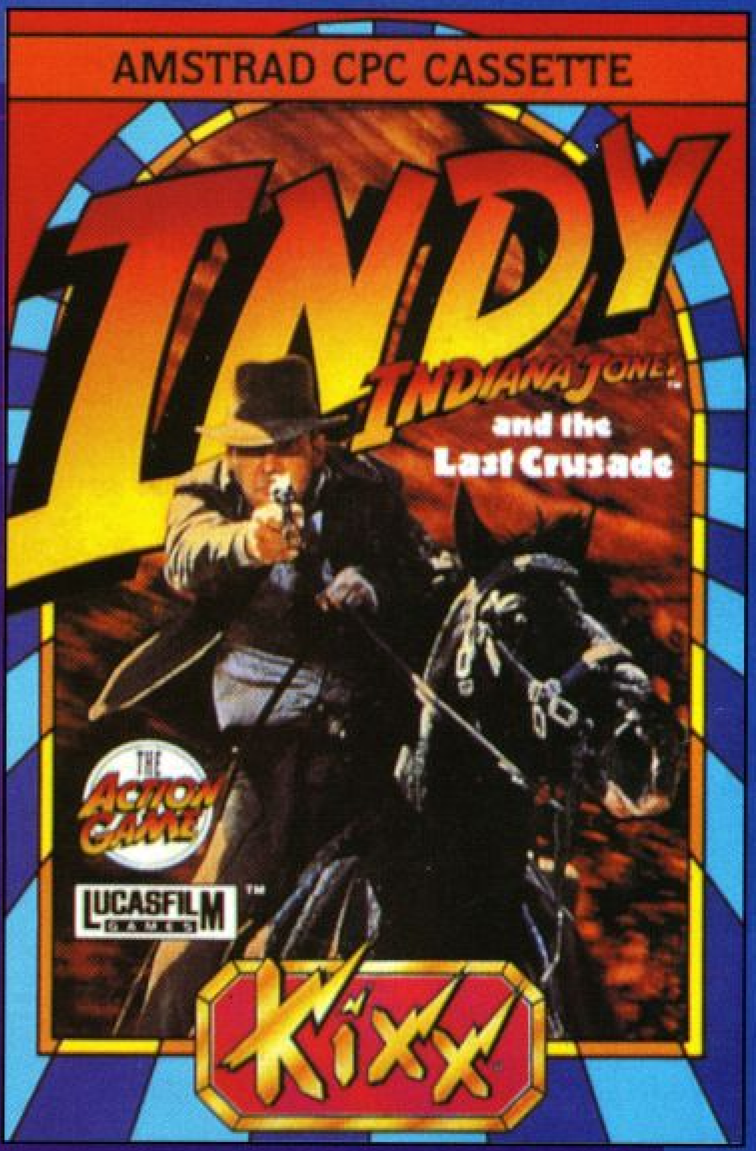
Totally playable and great fun to boot, this is another surefire budget success that'll have you sweating from the second you hit the accelerator. Great graphics, realistic sound effects and a guaranteed nightmare get it!

INDIANA JONES

Surefire adventure and excitement are a guarantee when you purchase this little beauty. Following the plot of the Last Crusade film very, very closely, you must take on the role of Indiana Jones and battle your way through four increasingly difficult levels to locate the last resting place of the Holy Grail.

Level 1 sees you groping in the dark of the caverns to locate the Cross of Coronado. Pick up torches to light your way and be sure to make a hasty escape across the top of the train. That secured, your next task is to locate the crusader's shield in the catacombs. Read your copy of the Byzantine Crusader carefully to make sure you pick the right archway on your search, other wise you could end up roaming around in the catacombs until way after tea-time. Not recommended.

On level 3, you must locate your father's lost notebook, making sure that you have a valid pass on you at all times. Unfortunately, these little blighters have a tendency to fall apart after a while so, to ensure that you don't set off the alarm, remember to pick up the passes.



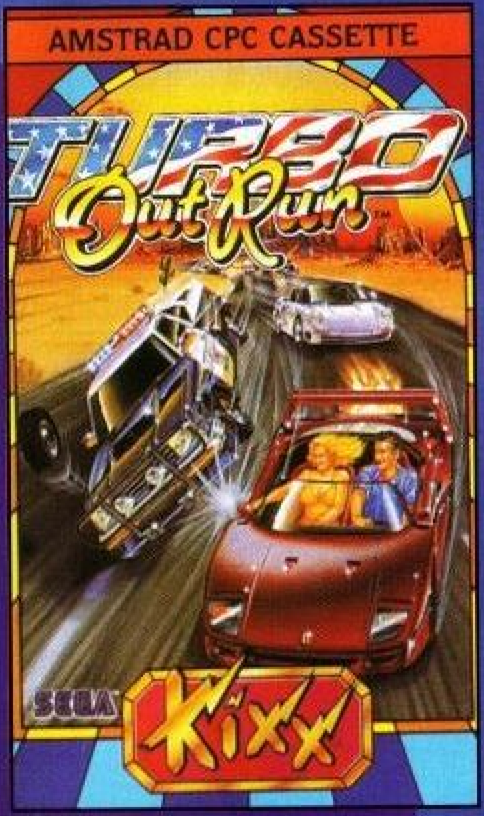
If you manage to get this far, your last task is a race against the clock, as you take on the traps set by the crusading knights, on the way to the Grail. Succeed and you'll save your father's life. Fail and his heart turns to stone.

This one's a multi-load but don't let that deter you, as it is a beautifully crafted offering, featuring excellent graphics and tremendous atmosphere. For Indy and adventure lovers, this is one blast well worth getting hold of.

TURBO OUTRUN

More blistering race action here, this time in a 16 stage dash across the USA, taking in all sorts of weather conditions and more obstacles than you've had hot dinners.

Starting off with a few relatively easy jaunts, the action really hots up after the first stage post in Chicago, where you will have to make some important decisions to customise your car. Do you



choose high grip tyres, or do you soup up your engines? At first, these options won't seem so crucial but, if you make the wrong decisions later on, finishing the course is going to be murder.

Pushing your F40 Ferrari to the limits, be sure not to let the Porsche 959 out of your sights at any time unless, of course, you are way ahead of it. Keep an eye open for the police and dodge all of the obstacles that fill the road ahead of you.

Racing in the plain light of day is fairly easy, though you will soon have to come to terms with some pretty hairraising storms, sand drifts, snow blizzards and night time racing.

Set to get your pulse rate racing, Turbo Outrun is an excellent race offering, with plenty of variety and plenty of hard work to take on. If you like your driving on the rough side, this should be right up your street.

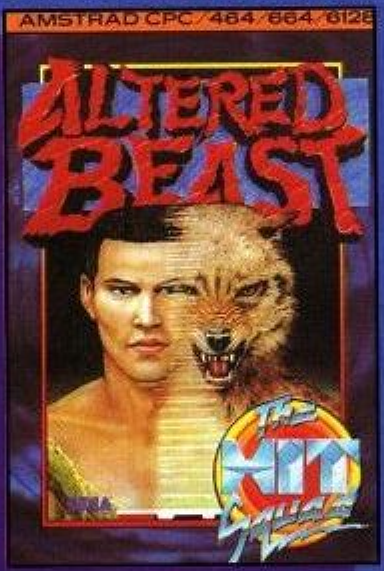
ALTERED BEAST

Let the beast inside of you do its worst in this excellent adventure offering, which sees you taking on everthing the Underworld has to throw at you in a desperate bid to save the Princess Athena from the evil Nelf, Lord of the Underworld.

Risen from the grave, you are given awesome super-powers, enabling you to transform into different beasts to suit the occasion. Picking up the spirit balls will boost your powers enough to make the change and take on the host of evil adversaries that stands between you and success.

As Strongman, your strength is increased tenfold, allowing you to punch and kick your enemies into oblivion. As Werewolf and Weretiger, your skin shredding teeth are enough to deter even the most ardent of assailants, while as Bear, your bad breath should take the wind out of most enemy attacks.

Use your powers carefully and be sure to stock up on the spirit balls at all times. You'll have to be very good indeed to get Athena back to poor old Zeus and mastering the different controls for each of your split personalities may take some getting used



to. Once you have, however, this is one blast that'll keep you coming back time and time again for another slice of the action.

Again, this one is a multi-load, so keep the cassette ready at all times. That said, the atmosphere of this blast is electric and the soundtrack is out of this world. If you haven't seen this one before, make sure you make it one of your next purchases – you won't be disappointed.

RED HEAT

Here's another film licence, featuring the big guy Arnie himself, that'll have your trigger finger well and truly worn out by the end of the



game.

Featuring some extremely neat graphics, your job as Captain Ivan Danko, is to track down the infamous Russian drugs dealer Viktor Rostavili. Set over four action-packed levels, your first job is to take part in some particularly rough hand-to-hand combat in the Russian sauna. There's a whole bunch of hoodlums in there after your blood, so you'll need to be quick to make it out alive.

Be sure to look out for bonus items at all times as you move on to the streets of Chicago in your quest to stop the drugs baron, and master the controls quickly to duck flying objects.

As you battle it out with Rostavili's henchmen, keep your eyes peeled for extra ammo cases. Run out and you're in big trouble so, use your gun sparingly and save your ammo for the big guys. Reaching the bonus round, you'll need to have lightning quick reflexes to hit the high scores but, if you do, there's plenty of energy and ammo to be collected.

Remember, the game isn't over until Rostavili is taken out, so pick your route carefully to make sure you get to the final confrontation at the end.

As well as beefed up weapon power, you'll need to keep your wits about you at all times. Be careful, not everything, or everybody, is what it or they seem.

Furious action is the name of the game and, as film licences go, this one ain't bad at all.

Jim Johnson

Toobin'	Hit Squad	£3.99	92%
Power Drift	Hit Squad	£3.99	88%
Turbo Outrun	Kixx	£3.99	80%
Indiana Jones	Kixx	£3.99	86%
Altered Beast	Hit Squad	£3.99	78%
Red Heat	Hit Squad	£3.99	74%

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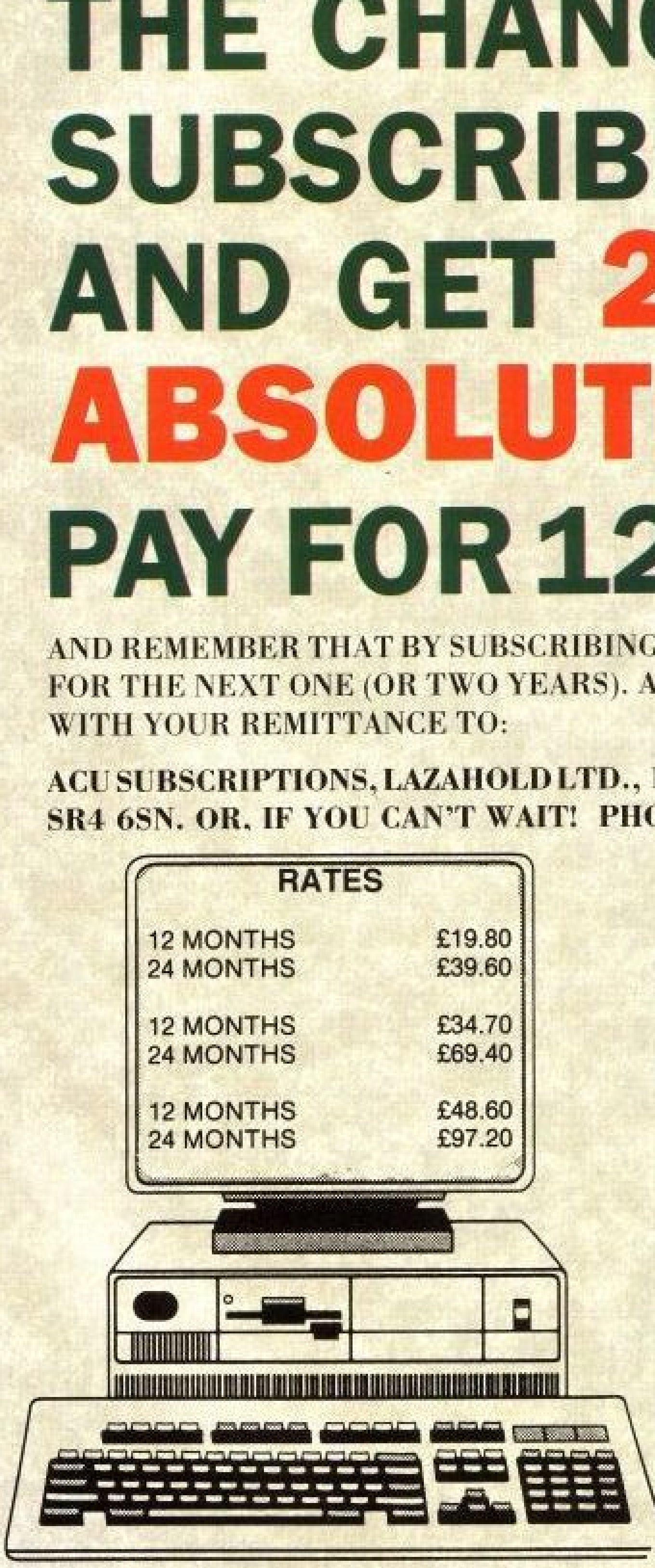
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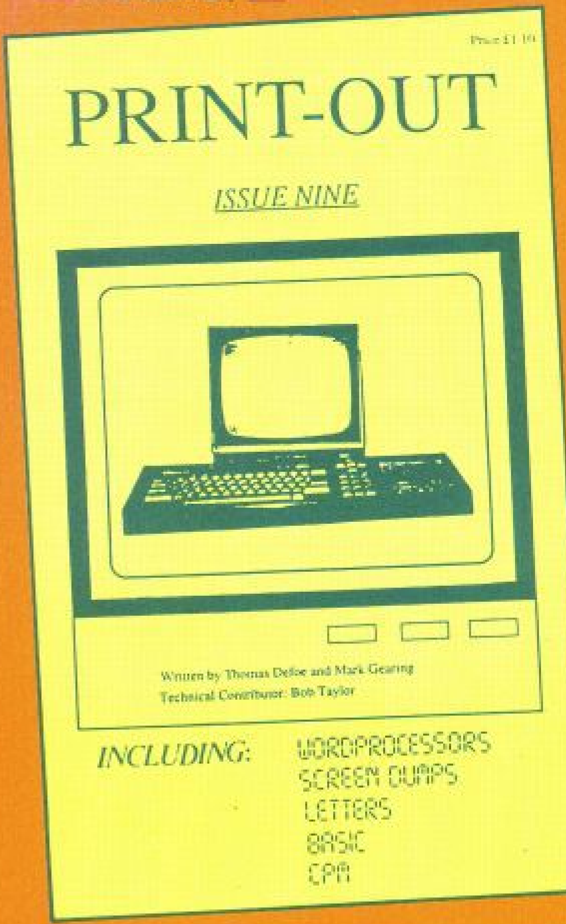
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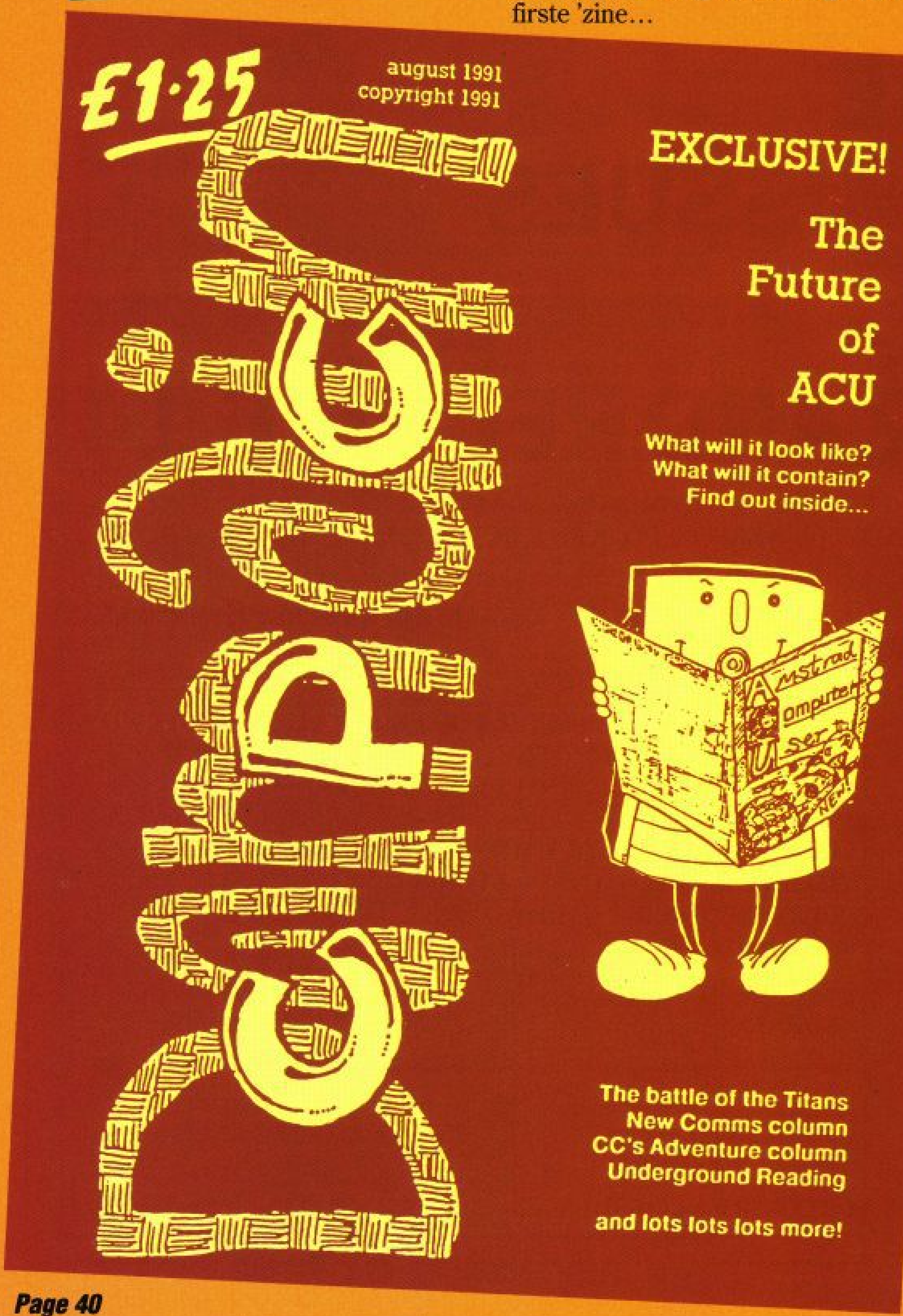
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UNDERGROUND READING

In which Alan Scully reads between the lines of the CPC Fanzine world.

Any computer is only as good as its underground network; without PD libraries and fanzines, where would the Atari ST or Amiga be? There is no need to go into PD libraries here, Bob Adams already does that, but fanzines are a different story. Often ignored by the glossies, fanzine editors find it very difficult to get free publicity, but not any more! Let us not waste any more space and get cracking with the firste 'zine...



Print-Out

8 Maze Green Road, Bishop's Stortford, Hertfordshire CM23 2PJ.
Price: £1.10 bi-monthly

Print-Out has to be one of the best fanzines around (in my opinion!). Each issue contains 40 A4 pages covering everything serious about the CPC. Regular articles include Firmware Guide, a guide to the machine code routines built into the CPC; Homebrew Software, the true budget programs; Beginner's Basic, no explanation needed; Introducing CP/M, essential reading for getting to grips with CP/M; Machine Code, tips and routines to help with machine code programming; Advanced Basic, technical information on BASIC; and Sound, an introduction to the CPC's sound chip.

Issue 9 also contains a very interesting supplement detailing compatibility between the Plus and CPC machines. This should be essential reading for Plus owners as it details some of the hardware and software that can be used with the new Pluses, and tells of some that can not!

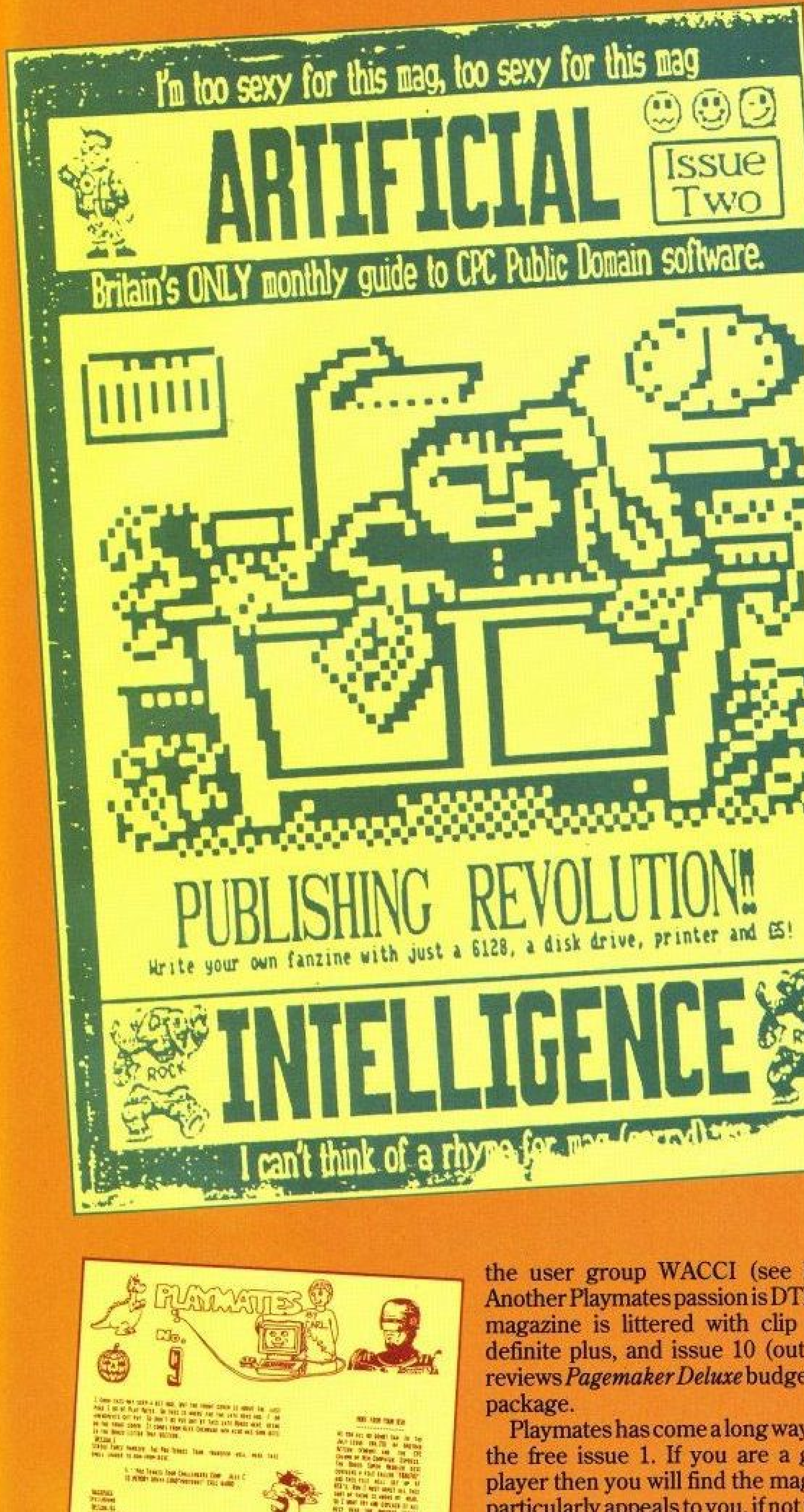
It is obvious that a lot of time goes into the production of Print-Out, you can tell this by just a glance. The main body of the fanzine is produced with *Protext* and a Star LC-10, an Apple Mac is used for headlines and the occasional graphic. What more can I say?

Playmates

Carl Surry, 37 Fairfield Way, Barnet, Herts EN5 2BQ.
Price: £1.30 tri-monthly

Don't be put off by the name, Playmates is actually a very good read! Geared more at the games player, the fanzine concentrates mainly on games, reviews and hacking. Playmates is perhaps best known for running the Bonzo Bulletin information (previously the work of Nemesis), this accounts for the majority of its readers being ardent hackers!

If you are a serious user, do not be put off buying the 'zine, it covers serious issues as well! As an example, issue 9 contains details on how to upgrade a 464 to a 6128, plus a review of





the user group WACCI (see later). Another Playmates passion is DTP. The magazine is littered with clip art, a definite plus, and issue 10 (out now) reviews *Pagemaker Deluxe* budget DTP package.

Playmates has come a long way since the free issue 1. If you are a games player then you will find the magazine particularly appeals to you, if not then it is still worth buying for all the other news, information and features.

CPC Domain

Alan Scully, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.
Price: £1.25 monthly

Whatever I say about this fanzine I'm going to be accused of bias. Why? Well, if you have not already realised, I am the editor of *CPC Domain!* This puts me in a bit of a spot so I am going to stick with telling you what the 'zine contains and refrain from comments like even better than ACU, get it now!

Like Print-Out, CPCD concentrates on the serious side of the CPC. In particular, PD software features highly with the fanzine being run alongside the Scull software library. Commercial software creeps in too with both Prototype and Labelmaker being reviewed in issue 3.

Regular articles include News, CPCD first informed of the ACU changes in June this year with full details in the August issue (4); Adventuring, Simon Avery brings regular tips and news from the adventure circle; Comm-Line, the beginners guide to comms; Postbag, at least six pages of letters every month; On-Display, regular review of PD clip-art; and Spotlight, all the latest disks in the Scull SL.

Reviews vary widely from month to month. Issue 4 reviews CRR, an off-line mail reader for comms, and compares *Pagemaker Deluxe* and *Advanced Desktop Publisher*, the two budget DPTs. Reviews in issue 5 include the latest public domain DTP, *Tiny Desktop Publisher.*

CPC Domain is not produced on a CPC but on an Atari ST with the latest Laser quality bubble-jet printer. Even if I do say so myself, this gives the magazine the 'look' of a glossy. With a free Desktop Publisher (Pagemaker Deluxe) for all subscribers, readership is growing rapidly. Oops, I think I've started to hype, time to move on...

Artificial intelligence

Tim Blackbond, 19 Lee Street, Littletown, Liversedge, West Yorks WF15 6DZ.
Price: 70p monthly

Artificial Intelligence is unusual among fanzines in that it is dedicated to public domain software! Actually, it does contain features on non-PD programs, but only those available mail order and at PD prices. Each issue contains 20 or so A5 pages, most of them packed with reviews and news. Since Tim is an ardent Vic Reeves/Red Dwarf fan, the 'zine is packed with inane humour associated with the aforementioned programmes, a pity really.

Issue 2 reviews no less than 11 disks of PD as well as five non-PD programs. It also contains a feature on commercial game creators giving details on *Pandora, The Quill, GAC, Adlan, General Military Simulator, Sprites Alive* and *PAW.*

AI is produced on a CPC using *Pagemaker Deluxe* and *Micro Design.*

The magazine looks pretty good considering the Amstrad isn't an ideal machine for DTP work. If you are into PD then AI makes essential reading.

Splatt!

K Gray, 3 Alder Crescent, Orford, Warrington, Cheshire WA2 8AQ.
Price: £1.25 squi-thonly

Don't bother looking it up, 'squi-thonly' is how the regularity of *Splatt!* is described! As you may already know, Splatt! is a cartoonzine drawn by Krazy



Kex Gray. It does not really have much to do with the CPC but provides light entertainment between keyboard bashing sessions.

Issue 4 has over 80 pages, not bad value for £1.25. It contains all the usual crowd: Harry the Exploding Sheep, Spooky Ray, Scandal, What not to do at a Funeral, plus lots more. And it does have a slight connection with computers, namely 'The Piracy debate', I don't need to explain what that is about!

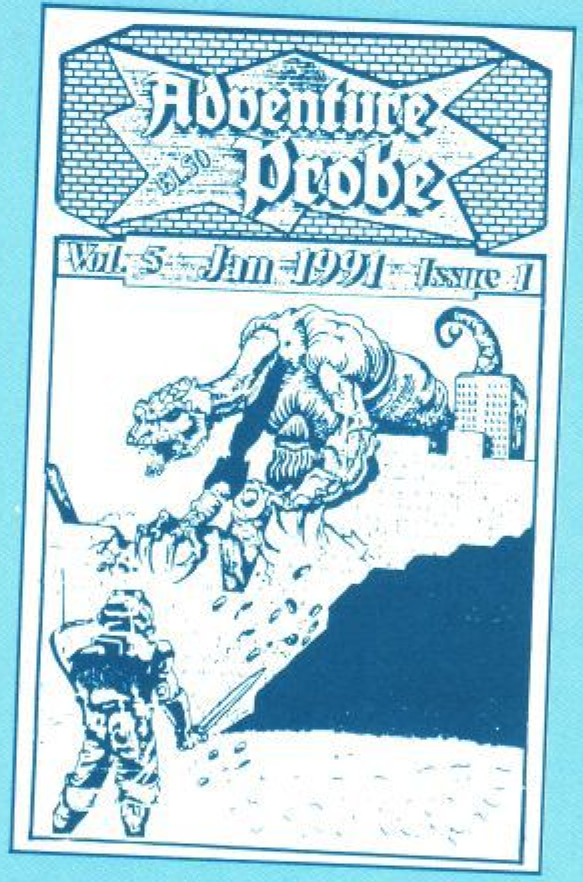
If you fancy a change then visit your local plastic surgeon – if you fancy a laugh, pick up a copy of Splatt!

Adventure probe

Mandy Rodrigues, 67 Lloyd Street, Llandudno, Gwynedd LL30 2YP
Price: £1.50 monthly

Adventure Probe is perhaps the most well known adventure fanzine. Although not CPC Specific, the magazine does contain a lot of information of interest to CPC users. Readers of Bob Adams 'Dungeon Master' column will probably have already heard of Probe.

Regular features include Software Reviews, Letters, News, Solutions, Hints and Tips, Bugs and Amusing Responses, and Serialised Solutions. Probe also runs the most comprehensive adventure telephone helpline in



existence and has solutions/maps for literally hundreds of adventures (available for just a small charge).

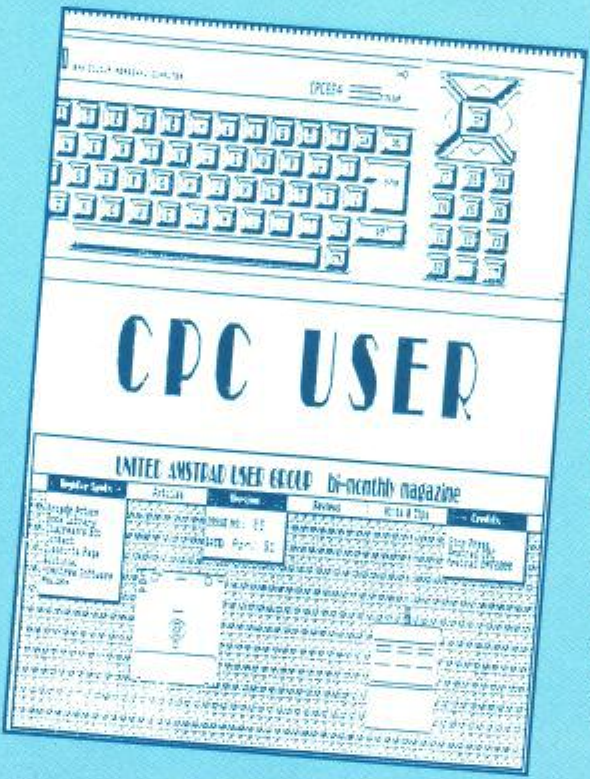
If you're an adventure fan then you'll find Probe an essential read every month.

CPC user

United Amstrad User Group, 41 Kings Road, Gosport, Hants PO12 1PX.
Price: £1.50 bi-monthly

The United Amstrad User Group has been around for nearly five years now, during which time it has published *CPC User.* It is probably the only genuine CPC user group run for the benefit of its members and should be supported for this fact alone!

Inside the fanzine you'll find articles on Adventuring (written by Debby Howard of Adventure PD), Getting the best from Protext, Beginners Basic,



Games, and Firmware. The UAUG also runs PD libraries on disc and cassette as well as a book lending library, full details of all three can be found in the fanzine.

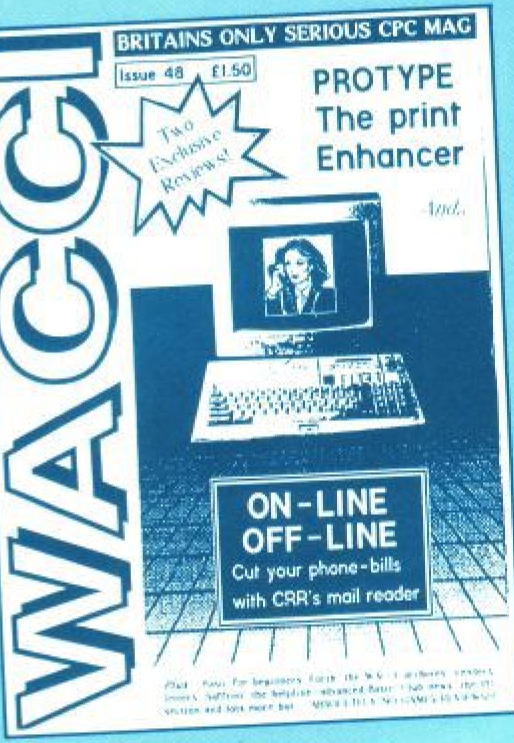
The editorship of CPC User was changing hands at the time this article was written. The previous editor, John Packham, did a good job in giving the magazine the friendly feel that most lack. Let us hope that Steve Hayward, the new editor, does as good a job, if not better.

WACCI

Steve Williams, 9 South Close, Twickenham TW2 5JE.
Price: £1.50 monthly

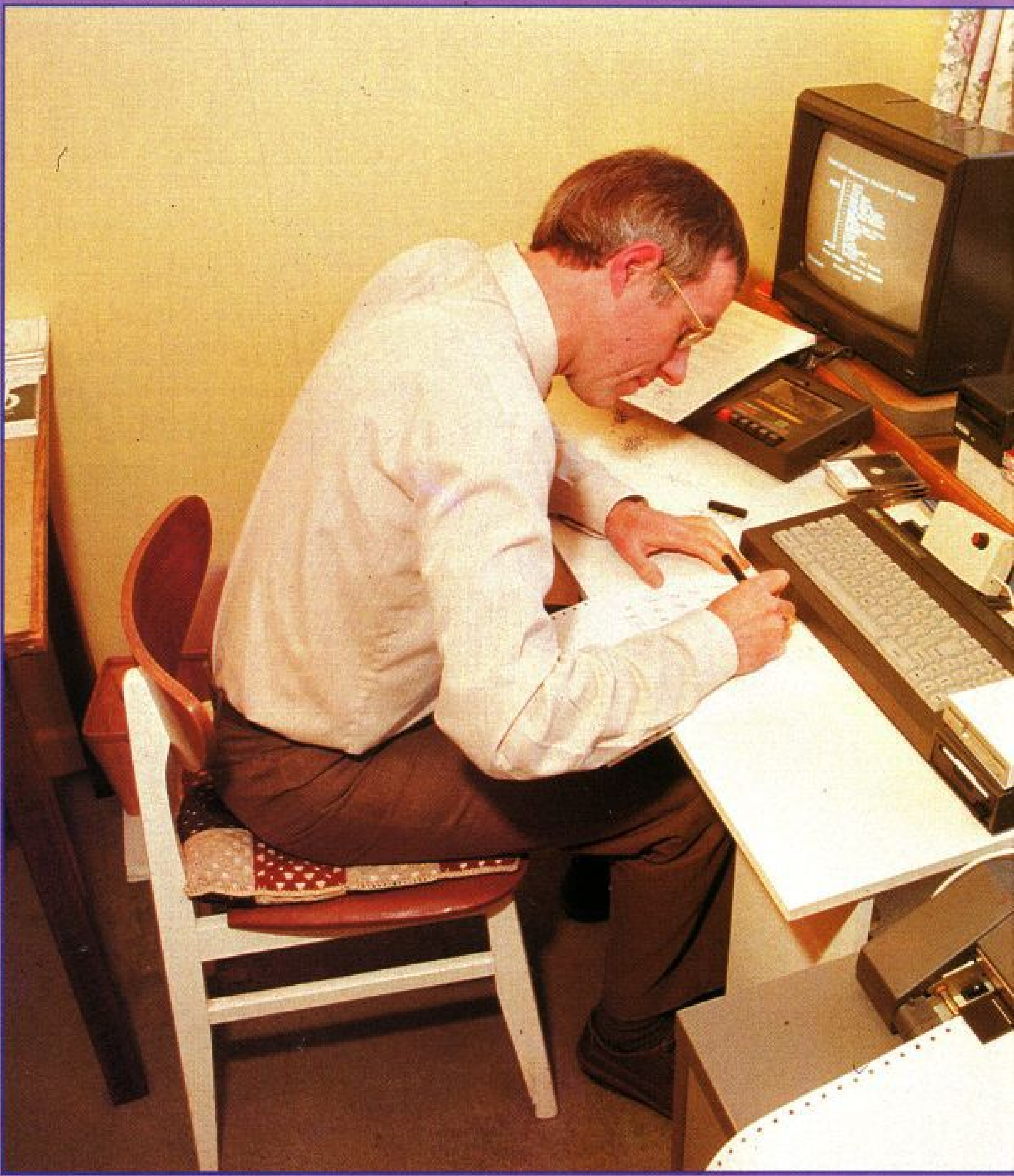
Only in the extreme can *WACCI* be regarded as a fanzine. With Steve placing full page adverts in glossy magazines, is it any wonder that WACCI has a subscriber list in excess of 1500?

WACCI 'claims' to be 'Britains only serious CPC mag'. Although not quite accurate, the fanzine is certainly a very good read. Regular features include Very Basic Basic, a beginners Basic tutorial; Finishing Touches, more advanced Basic; Forth, an introduction to the world of Forth programming; Simply Saffron, Inane humour from an ex-Amtixer; Poking in the Library, a look



at the latest software in the WACCI PD library; and A Passing Thought, the role of computers in education. Reviews are another prominent feature, WACCI readers discovered Pro-type before the glossies printed their reviews!

As mentioned before, WACCI runs a PD library. Here you will find a large selection of software covering CP/M and AMSDOS. Prices are quite expensive at £6 or so per disc but WACCI is run as a business rather than for fun.



WORD IS OUT!

Chris Knight braves the wrath of Brunning to fill in the gaps on the eve of the new BrunWord ROM launch

Cast your minds back to the August edition of ACU and you'll probably remember that I gave you the low-down on the very first BrunWord ROM module to leave the clutches of Brunning Software. 'Simply brilliant' is a two word summary of that early review; the product that is, not my purple prose.

For the last month or two I have been using the very latest production version of this excellent little device and I can tell you that my opinion is still just as exuberant. Now that the little monster has been officially released, I've been given the nod by Peter Brunning to tell you all I know, well almost all!

The serious CPC programmers absolute reference, as we all should know but don't, as we can't get hold of a copy, is the Firmware Manual, which gives a complete description of the actual programme routines contained within the CPC computer, known to machine code programmers as ROM calls.

What's a ROM?!! OK, explained simply, you will have noticed that any disc programme loaded into the machine 'disappears' when the computer is turned OFF. That's because disc programmes are loaded into a memory area that only remembers while it has voltage applied (RAM). So, turn it OFF and the memory goes. However, there are some things that the computer needs to remember, like how to load from a disc, even after it has been turned OFF.

A permanent memory system (ROM) is used for these 'Firmware' programmes and this highlights the incredible advantage of programmes on ROM – the programme is always loaded, you just need to switch ON.

Going back to my original point, the Firmware Manual states that there is no direct provision for a programme in ROM to access data from another ROM. This is a severe limitation for programmes such as a spelling checker, for if the spelling checker programme is in ROM, then the dictionary cannot also be in ROM… (Now you will understand Peter Brunning's sweat and toil in getting his little beastie together.)

The BrunWord ROM overcomes this limitation by using a very special ROM board, which splits the ROM addressing system into two independent paths – two problems cured at a stroke. The BrunWord ROMs can access data from other ROMs and the ROM is supplied as a complete plug on module, so no ROM box is needed.

If we now go back and look at Brunning's 'cornerstone' programme, *BrunWord 6128*, the pattern of requirement becomes obvious. This programme loads the word processor and spelling checker into the main RAM and the dictionary into the 64K banked memory, leaving room for 24,067 characters of text. Not a bad achievement for a disc programme, but the memory is crammed full, with not a hope of any expansion without some compromise.

The extra features of *BrunWord Elite* take just 4% off the text area but the 9 pin print enhancer 'Headline' requires oodles of RAM, and so takes all 68K of memory previously used by the spelling checker. Similarly, the full database, Info-Script, needs its own work area which takes 30% of the text RAM and uses the banked memory for storing your data. Adding a 256K memory pack eases the congestion for Info-Script, but at £99 cannot be considered an extremely cost-effective measure.

Given the memory limitation of the CPC computer, I have to say that Brun-



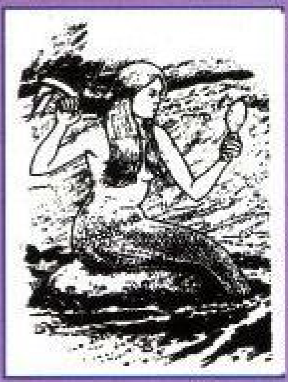
ning's disc software does a remarkable job of optimising the compromise, but it is a compromise.

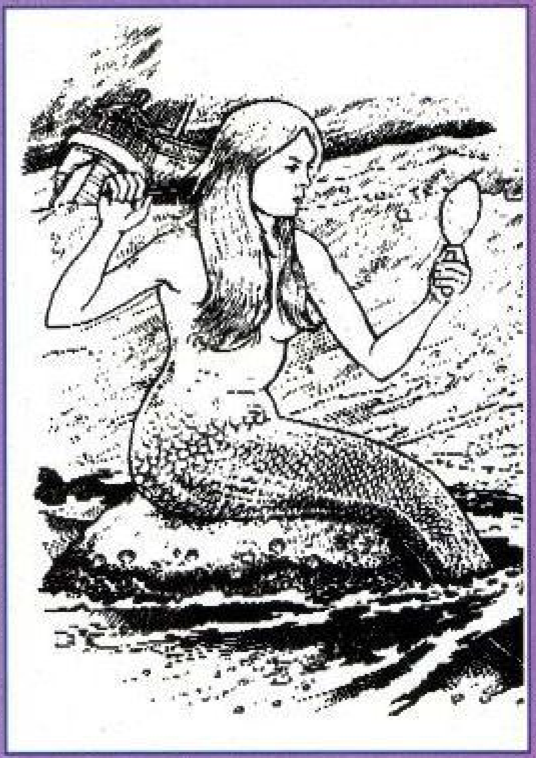
So, the task Peter Brunning was set, was to design a ROM system that would enable all the programmes and data to be stored in ROM, freeing all the RAM for text and Info-Script data. Taking into account that each individual ROM holds just 16K bytes, Brunword's spelling checker needs 64K for the dictionary and each font takes 14K, the complete Brunning system needs an incredible 224K bytes or 14 ROMs. Work that out at normal software on ROM prices of £20 each and we get £280 without ROM boxes. Obviously, the task was also to achieve a sensible price!

The solution that Peter Brunning came up with uses just one actual ROM, which is the latest technology ROM with 256K bytes of memory.

Then some very clever circuitry on the ROM board partitions it into three

The excellent dual-size print routine is revealed.



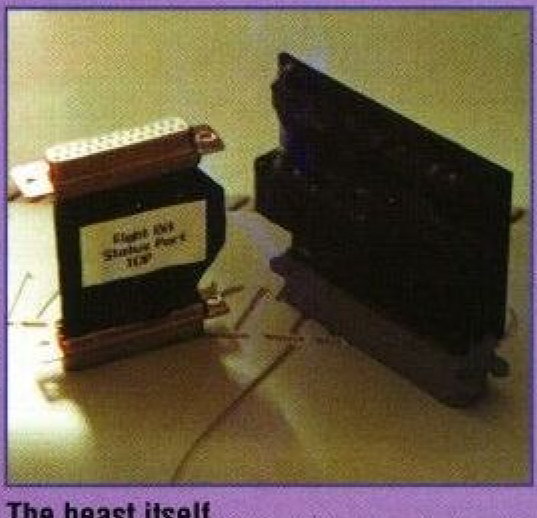


ordinary ROMs and 13 data ROMs. Exactly how this is done I cannot reveal but, oh yes, I was given the complete story including some thumb nail sketches. Whether or not I actually could repeat all of the technical wizardry that Peter took me through, is an entirely different matter, so please don't ask.

So much for my IQ rating, now it's your turn. If you've been reading carefully, the question on the tip of your tongue will be – what goes in the two spare 16K slots. If not, then go to jail until you work it out! All sorts of extra goodies have been added, the most notable being the ability to print pictures within the text (previously saved as screen dumps), the refinements to setting the print head position and the ability to format 3 inch or 3.5 inch discs, all without upsetting the text or data already present in the memory. There's auto selection of drives in a two drive system, improvements to the headers and footers and control of the box reverse has been added.

There is also about 14K of example files actually in the ROM and, can you believe it, there's still enough room for KDS ROMDOS to be added (not 6128 Plus) if you pay the extra £15.

As if that weren't enough, to cater for future enhancements, the special ROM board is already wired to accept the next size ROM, which is 512K bytes and a minor change is all that is needed to accept the, as yet unseen, 1 megabyte ROM. The ROM board is also designed so that a further one or two similar boards can be connected in parallel. The design of these extra ROM boards would allow them to be used as one time programmable RAM.



The beast itself.

Think about it, ROM is the cheapest totally reliable storage system and each board could have two or even four megabytes of memory. That's getting into the realms of hard disc capacity but with the reliability of ROM.

Peter Brunning did agree to my giving an outline of his future ideas, though I hope I haven't gone too far. At this point, I feel I should quickly add that, while the idea of this pseudo hard disc is tremendously exciting, so far it is mainly in Peter Brunning's very own hard disc (the grey one), but then so was the ROM module a year ago!

In conclusion, I think it is quite safe to say that the BrunWord ROM Module is a megastep for the CPC. Mine sits neatly at the back of my 6128 Plus and I use it virtually every day. It's always there at the touch of four keys, is reliable, fast and has become a vital part of my computing agenda. What more can I say?

Basically, if you are already one of the thousands of contented BrunWord users, you will no doubt be quite prepared for the latest in a long line of Brunning innovations to add to your collection. If, however, you are one of those few who have yet to experience the Little Clacton genius, then get set for an extremely pleasant surprise when you send off for your own module.

In the meantime, why not try giving Peter Brunning a call on 0255 862308 for even more information and to join the ever-increasing queue for this marvellous little Christmas present.

Twisting and turning

Doc Watson considers some complex cross-over conundrums and sings the praises of his beloved Arnold.

One thing I've noticed recently is that no matter how many computers I have access to, I always seem to end up using my trusty CPC for basic applications such as word processing, not to mention machine code programming. Despite the Amiga's luvverly graphics and sound, trying to run any serious applications on it is a joke. The ST's klunky GEM interface renders it useless, while PC software packages have such an abundance of features and documentation that I don't know if I'm coming or going. The Apple Macintosh is great for DTP but its graphical word processors and mouse seem a little too fiddly for me. As for UNIX workstations, well, anyone with an IQ under 500 and who hasn't won the 'Krypton Factor' need not apply.

OK, so I may be exaggerating a little, but whenever I need to get something done quickly and with the minimum amount of fuss, the CPC is the machine I turn to. It seems that whatever these beasts lack in power is more than made up for by their useability. Anyway, enough of this babbling and on with the show...

First up this month is Ian Leggate from Ayrshire:

If you can help me I will be really grateful. I have an Amstrad 6128+ which I bought this year, my friend has a PCW9512. He gave me a loan of his master discs which consist of System/ Utilities/BASIC/CPM+ and Word processor/Locoscript2. We thought if they came up on the plus machine I would get some good use from them. Alas, we have tried and tried but cannot get them to run.

I have been told there is a way of doing it, if so, can you please advise me. I have tried putting my master disc in first but without luck. Also, is it possible to copy from cassette to disc on the 6128+?

Although the two machines in question are not directly compatible, they do have one thing in common – the CP/M operating system. Any software specifically designed to work with CP/M+ will run on your 6128+. For PCW users CP/M is a way of life, but for CPC owners its use is optional. Simply insert the CP/M+ master disc that came with your 6128+ and type :CPM. From now on your machine will behave in a similar way to a PCW. Running general purpose CP/M programs should be relatively straightforward but you may well encounter problems with packages written specifically for the PCW, especially if they use system format discs which CPCs cannot read. One such example is *Locoscript* which also appears to bypass parts of the operating system. On the other hand, Infocom adventures will work quite happily with either machine. Be warned though, that making copies of your friend's software to use with your own 6128+ is highly illegal and should be avoided.

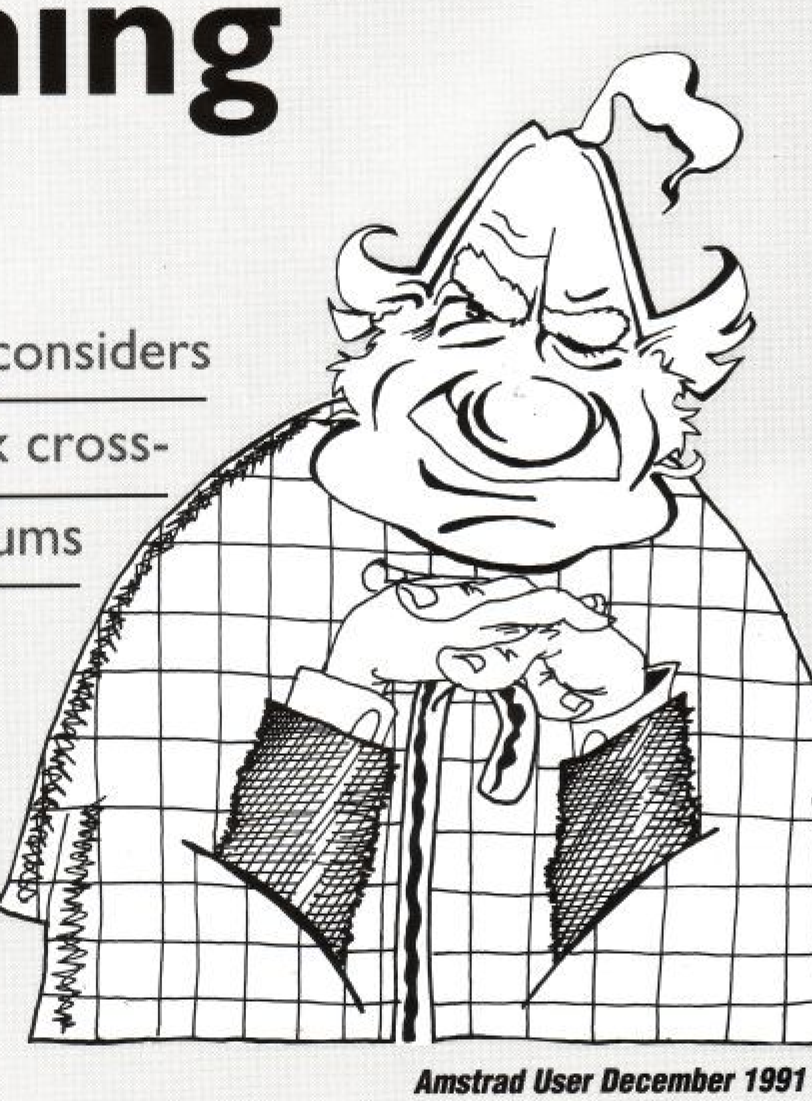
Moving on to your next query, transferring software from tape to disc is something of an art form. If you only want to transfer your own programs then simply type :TAPE, load the required program, type :DISC and then save it again. Things start to get complicated with commercial software because of all the protection routines that are employed, especially with games, to prevent people copying them. Over the years, specialist utilities have been written to try and automate the procedure but games manufacturers always stay one step ahead. A good bet is *Bonzo Super Meddler* which is known to transfer around 800 different titles. The ultimate weapon in the tape-disc transfer war is a piece of electronics called the Multiface II+. This device plugs into the back of the computer and is virtually unbeatable. The only snag is its price, around £45, although it does have many other uses, particularly for programmers and budding hackers. Make sure that it's compatible with the new-style Amstrads such as yours.

The Missing Link

Put on your best Scandinavian accents for this next letter which comes all the way from Norway. Bjornar Saeternes writes:

"I own a Commodore PC 20-III, an Amstrad CPC 6128 and a DMP 3160 printer. I've found out that this setup is a bit complicated, because I'm programming Pascal, working with DBase, Plan Perfect, Word Perfect and other applications on the PC, while I do some Z80 machine code, playing games etc., on my CPC. I think that netting the two computers together would make it a lot easier for me. In that way I'll get a 20MB hard disc available for my CPC, can send ASCII documents between the two machines and be less troubled with discs. But here I come to the major problem.

If I connect my printer to the PC, will



I then have the possibility to print something from my CPC? Will the netdriver for the CPC send the printing down Simplenet's interface and instruct the PC to print out through the centronics port or will Arnold himself take over and send the printing to his own printer port? Phew, a bit complicated but I hope you understand me.

Also, will Nine Tiles' Simplenet allow me to run CPC applications directly from the PC's hard disc e.g. starting up Tasword from the HD or starting up games?

Will the CPC's memory be affected by the netdriver program? Is Simplenet an all in one package so I can set up the system and go? Finally, what is the cost and can you give me Nine Tiles' address?

I think I had better start off by saying that I haven't got any personal experience of using Simplenet, but having spent much time with powerful PC/minicomputer networks the general principle sounds the same. By connecting your printer to the PC you will not limit Arnold's access to it. The PC will have control but Arnold can instruct it to print any of the files on the hard disc, or any text in Arnold's memory.

CPC applications can indeed be stored on the PC's hard disk before being transferred to Arnold's memory and used as normal. The Simplenet interface is likely to contain some code in rom and will therefore reserve a few bytes of Arnold's memory for its own use. This is only to be expected and shouldn't really cause you any problems.

Getting CPC software to work from a hard disc is difficult enough, but trying to use it over a network is going to be... well, interesting. CP/M stuff should be fairly easy but most games will definitely be out. As for the common AMSDOS applications, it's going to depend on how they've been written. You may well find that when an application has been transferred onto hard disc it still tries to load/save files onto floppy. Fortunately, much of Tasword's file handling is done in Basic so this should be OK.

Nine Tiles are proving a little difficult to track down so I'm afraid I'm unable to supply you with an address, price, or details of what you get for your money. Rest assured that I'll get the details for next month's issue.

Looking a bit Off Colour

Stewart Hughes of West Yorkshire has printing problems:

Some time ago I bought an Okimate 20 printer without a manual. Since then I have tried to get hold of a manual but without success. This printer was reviewed by ACU some years ago and was sold via the magazine as an Amstrad User Club special offer so it is likely that a number of readers will have these. If so, I would be pleased to hear from anyone who has a manual to sell or loan or who can give any guidance on control codes for underlining, changing fonts etc. Also, does anyone know if I can still obtain the colour-dump software which was included in the same User Club offer? Any help would be greatly appreciated.

I dug out an old review of your printer which states that colour-dump software is supplied with it on cassette, so there must be plenty of people who have a copy. The good news is that your printer is Epson compatible so the standard control codes can be used. Here's a selection:

UNDERLINE:	On = 27 45 1	Off = 27 45 0
BOLD:	On = 27 69	Off = 27 70
ELONGATED:	On = 27 87 1	Off = 27 87 0
SUBSCRIPT:	On = 27 83 1	Off = 27 84
SUPERSCRIPT:	On = 27 83 0	Off = 27 84.

Because colour printers are not that common, there are no standard control codes for changing colour. You'll have to consult the manual for this. Colour dumps will only measure about 6 x 3 and you'll get about ten per ribbon so it could be a costly business. If anyone thinks they might be able to help Stewart then he can be contacted on 0924 402124.

Learning to Drive

A couple of letters have arrived in response to me mentioning 3.5 inch drives in the October issue. B. L. Taylor from Plymouth writes:

Could you please HELP! My Dad and I have been trying to add an NEC (FD 5037A) 3.5 inch disc drive to my CPC6128 as a second drive. Dad has tried various things but without success. He says that he believes you have to put a twist in some of the connections but has yet to work out which ones.

As I am sure others must have done this modification in the past, could you please tell Dad and I how to go about it.

I'm not quite sure what you mean by 'putting a twist in some connections'. As long as you've got a list of the connections on your drive mechanism things shouldn't be too difficult. Simply construct a cable to link the eleven data lines plus ground from the Amstrad's drive connector to your NEC mechanism. You may discover that the 'write gate' pin on your drive is labelled 'disc write enable'. Having done this, you will need to find a regulated power source to supply the drive with +12V and +5V. If all goes well, you should end up with a working second drive that can store 178K. To take full advantage of a 3.5 inch disk's storage capacity, you will need to obtain some clever software such as *Rodos* or *Ramdos*.

Mrs J. Cox, who lives in Hackney, avoided the above problems by purchasing a ready-made drive. Unfortunately she ran into some problems of her own:

I ordered from Siren Software a 3.5 inch drive with Ramdos after first phoning to make sure there would be no problems. Unfortunately it did not run perfectly, in fact nothing did. The first disc I tried to format stopped formatting half- way through and I had to turn off the computer. The second attempt was OK, but I had the same trouble with three other discs.

I loaded Advanced Amsword but when I tried to load a file I got one line of text all down the screen and the top menu changed into an empty grid. I tried to load Mini Office II but whilst Ramdos was in the computer nothing would load or save.

I telephoned Siren Software and was told they would get back to me, but after 4 weeks I phoned again and was told to return the package for a refund. I sent the parcel recorded delivery but have not received my money back and I wrote to them recently asking them to send me a cheque.

I fear you may have been a little unlucky Mrs. Cox. What you are trying to do is certainly possible so there is obviously some sort of fault with the drive. I spoke to Siren Software, and although your name didn't ring a bell, they've promised to help if you phone them on 061-724-7572. Let us all know how you get on! Readers contemplating buying a 3.5 inch drive may be interested to know that we'll be taking a detailed look at the subject in a forthcoming issue.

Well, my word processor's telling me I've typed over 2000 words so that's my lot for this month. Join me next time when I'll have another 2000 ready and waiting.

WHERE TO FIND FAVOURITE PUZZLE BOOKS ...

1. ***Hidden in this wordsearch, written out forwards, backwards, up, down, or diagonally but always in a straight line***

P	S	D	R	O	W	S	S	O	R	C	R	O	R	R	I	M	Y	A	D	N	U	S
U	D	S	D	R	O	W	S	S	O	R	C	R	O	R	R	I	M	Y	L	I	A	D
Z	R	D	R	E	C	H	O	I	S	E	R	P	U	Z	Z	L	A	R	P	E	R	R
Z	O	R	U	L	P	U	Z	Z	E	P	O	Z	Z	B	P					G	G	O
E	W	O	W	Z	M	O	O	N	Y	T	U	L	Y	U	U					N	E	W
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H	C	Z	Z	L	U	L	E	L	O	E	R	N	M	P	M	C	H	O	I	H	C	R
T	E	L	L	I	Z	P	R	O	E	C	D	T	O	L	O	I	H	A	L	C	R	O
L	L	U	I	M	Z	L	P	G	L	R	R	W	N	Z	N	C	C	O	A	L	O	R
Y	P	O	E	A	L	E	U	I	L	C	H	O	I	Z	T	I	L	A	I	A	S	R
L	O	G	I	F	A	L	Z	C	P	I	P	R	S	D	H	O	Z	U	H	C	W	I
A	E	I	H	O	I	C	Z	L	O	C	U	D	Q	S	L	H	Z	Z	L	I	E	M
R	P	K					L	C	E	E	L	S	E	I	Y	C	U	Z	Z	G	R	Y
G	U	A					E	H	P	M	L	E	P	C	E	O	P	L	E	O	D	L
G	Z	L					D	A	I	L	T	A	I	R	R	O	G	R	A	L	S	I
E	R	P					S	Z	O	R	C	R	U	B	M	U	J	G	I	A	N	A
P	U	L	A	R	G	E	P	R	I	N	T	C	R	O	S	S	W	O	R	D	S	D
N	O	I	T	C	E	L	L	O	C	Y	L	H	T	N	O	M	E	L	Z	Z	U	P

2. ***At your newsagent***

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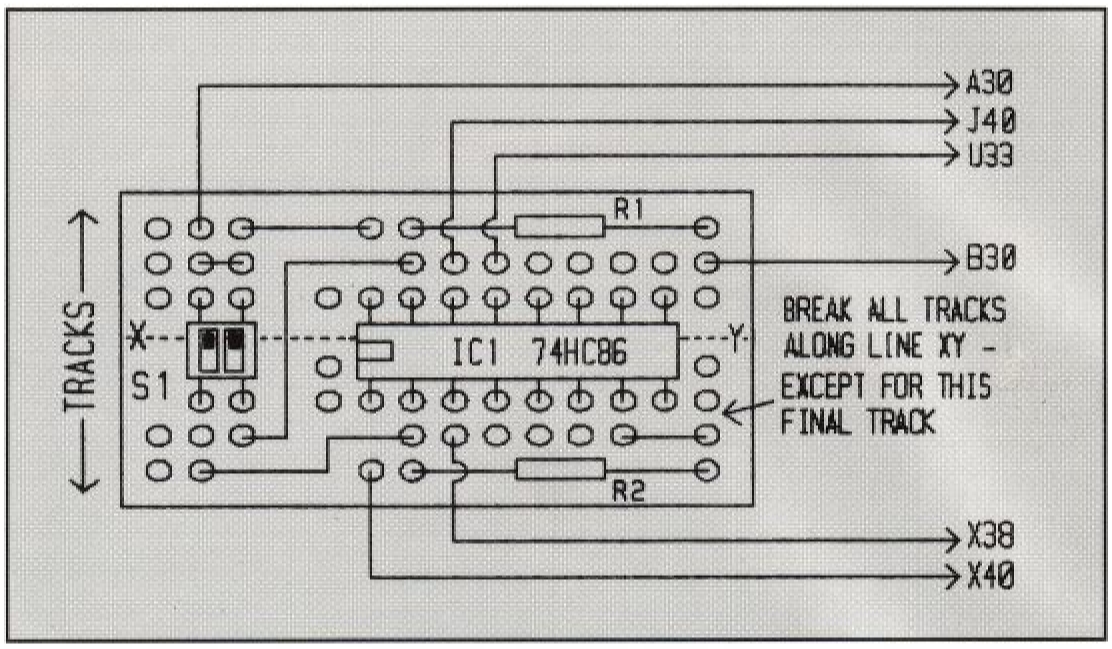
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One of the most common reasons for programmers learning machine code is to improve the speed of their graphics routines. Whether you're trying to produce multicoloured aliens, scrolling starfields, bouncing balls or three-dimensional shapes, you must first understand how to access the computer's video RAM.

The CPCs have their upper 16K of RAM (&C000-&FFFF) devoted to the screen display. Placing values in any of these addresses will immediately (or when the CRTC gets around to it) affect what you see on the screen. Each address corresponds to a group of horizontally-adjacent pixels, with the byte stored there determining the colour of each pixel within the group. In mode 0, every byte controls two pixels; in mode 1, four pixels; and in mode 2, eight. As there are always 80 bytes per screen line, irrespective of mode, you can see why there are 160, 320 and 640 pixels across the screen in modes 0,1,2 respectively.

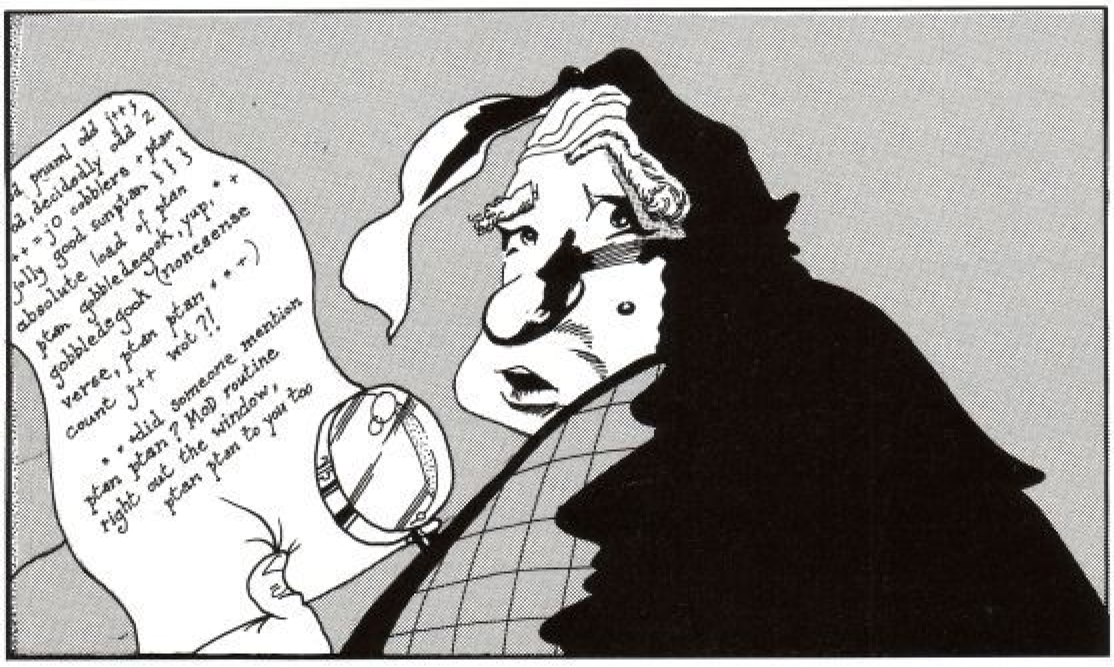
Working out which pixels correspond to each address can be rather tricky. Suffice to say that the layout was chosen for the machine's convenience rather than the programmer's! The addresses for a horizontal screen line increase by one from left to right, so I'll only describe how to calculate the leftmost address for each line.

A good starting point is the top left-hand corner of the screen, which corresponds to &C000. The seven lines immediately below this start at &C800, &D000 &D800, &E000, &E800, &F000, and &F800 working downwards. This is the first group of eight lines. The next groups begin at &C050, &C0A0, &C0F0, &C140 continuing down the screen. To summarise – the screen's 200 lines are divided into 25 groups of 8; the address of each group is &50 more than the previous; and the start address for an individual line is &800 more than the previous one in its group. Not the most straightforward of systems I think you'll agree.



THE TECHIE BIT

Get your diaries at the ready as Doc Watson dishes out some handy addresses for your perusal.



A more visual explanation can be given by running the BASIC program given below:

```
MODE 2:FOR N=&C000 TO & FFFF:
POKE N,255:NEXT
```

Having assigned an address to a group of pixels you need to calculate the value of the byte to be placed in it. By far the easiest display to consider is mode 2 because only two colours are used. The byte at &C000 will affect eight adjacent pixels, each one controlled by a single bit (Bit 7/MSB controls leftmost pixel, Bit 1/LSB the rightmost). If the bit is 1 the pixel has ink 1, if the bit is 0 the pixel has ink 0.

In mode 1, &C000 affects four pixels, each of which has two bits controlling it (hence four colours). Bits 7 and 3 hold the data for the leftmost pixel, bits 6 and 2 hold the second pixel, 5 and 1 the third, and 4 and 0 the rightmost. The lowest bit of the two is the most significant of the ink number, so if bit 7 was 0 and bit 3 was 1 then the leftmost pixel would be ink 2 or 10 in binary.

Mode 0 carries on from mode 1, with each of the two pixels controlled by four bits thus a palette of 16 inks. Bits 7,5,3,1 control the left pixel, bits 6,4,2,0 the right. Again, the lower the bit number, the greater its significance in the ink numbers. Experimentation is definitely the best way to understand.

Here are some useful firmware routines for handling the screen memory:

&BC0E SET MODE: Register A should contain mode number.
&BC1D DOT POSITION: When sent co-ordinates of a pixel in DE,HL, returns screen address in HL and

mask for that pixel in C.
&BC2C INK ENCODE: Converts the ink number in A into a whole byte of that ink's bit pattern.
&BC2F INK DECODE: Converts leftmost pixel of byte passed in A into an ink number.
&BC32 SET INK: Changes ink number A to flashing colours B,C. For a steady colour let B=C.

Finally for this month, a couple of things for all those who constructed the I/O port described in the July/August issues. It appears that, due to a mysterious printing error, certain copies did not have a25, b31 and c13 in the list of track breaks – sorry for any inconvenience. Next, here's a quick modification to allow four of the interfaces to work simultaneously.

The diagram shows a piece of stripboard with 14 tracks, each with 8 holes. Break the tracks where shown, and solder the five wire links into place. Insert the DIP switch S1 (Maplin code JH09K), IC1 (Maplin code UB23A) and the two resistors R1,R2 (Maplin code M1K0). Now attach this board to your interface, via the six long wires, at the holes shown. To achieve this, remove wire link J40-U33 from the interface. With this done, you can now alter which addresses the I/O port will respond to via S1. S1 has two on/off switches, so four combinations are possible; these correspond to &F8E0-&F8E3, &F8E4-&F8E7, &F8E8-&F8EB and &F8EC-&F8EF. Obviously, any interface will respond to the first address range without this modification. Thus, four interfaces can plug into the back of each other, as long as three have been modified, and all respond to different addresses.

That's all for now, but don't forget to keep sending in those letters, ideas, suggestions, queries etc. Byeee!

Hex Education (machine code tutorial part 4)

Did you manage to alter last month's machine code program to print the letter 'A' on to the screen? The solution is to alter the byte at 30001 from 7 to 65, i.e. POKE 30001,65. Don't be too heartbroken if you didn't manage to work this out because the program, despite being short, wasn't really meant to be understood. Its purpose was to simply show how easily m/c programs can be entered and run from within BASIC.

In fact, even experienced coders would be hard put to understand m/c programs if they were just listed as a sequence of numbers. Such numbers are fine for computers, but us humans generally need something a little more meaningful. For this reason, every machine code instruction (opcode) has an associated 'mnemomic' to help you remember it. To illustrate this point, here's our simple m/c program again but with the mnemonics shown alongside.

```
3E07        LD A,7
CD5ABB      CALL &BB5A
C9          RET
```

Even if you don't understand it, I'm sure you'll agree that the mnemonics are far more palatable than the numbers.

One way to avoid these numbers altogether is to use 'assembly language' or 'assembler' for short. Calling it a language is a bit misleading as it's really nothing more than the mnemonics that we've already encountered.

```
loop: LD A,42        ;load A with 42
      CALL &BB5A     ;print character 42 on screen
      LD A,66        ;load A with 66
      CALL &BB1E     ;test key number 66
      RET NZ         ;exit if key pressed
      JP loop        ;otherwise repeat process
```

The above listing is written in assembly language. As can be seen, one line consists of up to three parts – a label, an instruction, and a comment. Any or all of these constituents may be present, but they must be in the order given. Labels are an advanced form of line numbering and are generally terminated with a colon, while comments (similar to BASIC's REM statement) are preceded with a semicolon. The actual instructions are expressed as mnemonics.

Assembly language programs can be written using any standard text editor or word processor. The resulting text file is referred to as the 'source code'. This is used by a program called an 'assembler' to generate the actual machine code (a long series of numbers) and is called the 'object code'. Most commercial assembler packages such as 'Maxam' or 'Devpac' come equipped with their own in-built text editors which considerably speed up the development process.

Perhaps the biggest advantage of using an assembler is the ability to employ labels instead of specific addresses. In our assembly listing, 'loop' is the only label used and is defined on the first line. The instruction on the final line instructs the processor to jump to the address specified by 'loop', a sort of m/c equivalent to a BASIC 'GOTO 10' command. The advantage of using labels is that it relieves the programmer of constantly having to calculate addresses used in his/her program. For example, if extra lines of code were inserted at the start of the program, the precise position of 'loop' would change and so the address given after the jump command would no longer be correct. An assembler will automatically take care of this by recalculating all the labels before generating any object code.

Although assembly language is more sophisticated and friendly than pure machine-code, it is still very crude when compared to high-level languages, such as BASIC, Pascal or C, and is therefore known as a low-level language.

You'll be glad to know that we've covered most of the boring theoretical stuff and can now embark on learning some specific m/c instructions. It has to be said that many tutorials or books would choose to start at this point, rather than going into detail about microprocessors, number bases, opcodes etc. The reason for the inclusion of these topics is to try and promote a greater degree of understanding. If you can create a mental picture of what's going on inside the machine, then programming in assembly language will become easier. Most of us probably reach for a calculator when tackling long-division sums, but this is no reason for not initially learning how to do them by hand.

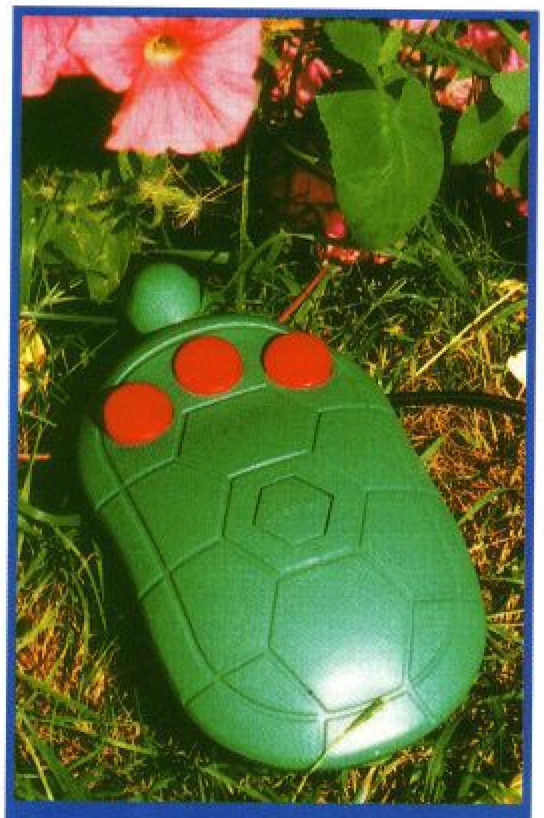
Talking of calculators, one that can handle hexadecimal and binary numbers may well come in useful. The only other tool you're going to need for the moment is an assembler. Not sure where to get one? Don't worry, ACU's very own assembler is coming to a newsagent's shelf near you, soon! This little beauty has been written with beginner's in mind, so you'll be able to type in and use assembly listings as if they were BASIC programs! Keep your fingers crossed and with a bit of luck, not to mention a following wind, it will arrive next month.

See you then!

I'VE GOT A BRAND NEW JOYSTICK...

...AND I'M NOT AFRAID TO USE IT (PART I)

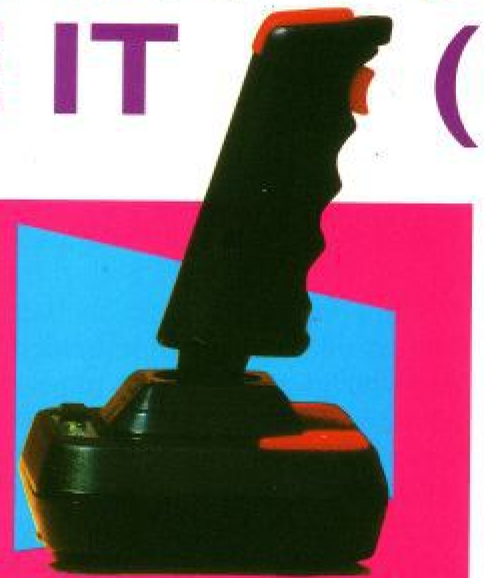
THE CHEETAH RANGE



Tortoise (£9.95)
Full marks go to Cheetah for what can only be described as a revolutionary, or utterly silly, joystick. The base is a standard four sucker base, but the actual stick itself has been replaced with a tough green tortoise, complete with head. Three fire bottons line the top, there's no auto-fire, and you control the thing by placing your hand on it and rocking in the appropriate direction.

Despite the lack of auto-fire the Tortoise wasn't bad on shoot 'em ups, but was a little too uncontrollable on driving games. The buttons tend to get in the way, unless you move your hand forwards so that a couple of fingers rest on the Tortoise head itself.

It's slightly awkward to use and not precise enough for some games, but for only a tenner and the wackiest design imaginable you can't really complain. What next, giraffes?
ACU Rating: 70%



Mach I (£12.99)
The classic, and to some people, still unbeaten as the stick for skilful players. The Mach I offers a large suckered base, confusingly labled auto-fire, left and right fire buttons, and two stick mounted fire buttons. The stick has the more expensive micro-switches, and sports a lighter control. Having said that the base fire buttons have been toughened up a lot. They used to be very soft, now you get thumb ache holding one down.

Pretty good for shooting games (I actually managed to get further on the test game with this stick than any other), though you really want to use auto-fire, otherwise it's not much fun. Driving games performed very well with the positive feedback and only using the button for the odd gear change.

Well worth the money, a quality stick and still a first choice of mine.
ACU Rating: 85%

Exterminator (£6.99)
You'll be lucky to exterminate anything with this stick. A small base offers suckers and a left side fire button only, with a second button mounted on top of a very loose microleaf operated stick.

The Exterminator was usable, but a bit of a struggle on the driving games due to the lack of positive feedback you get from microleaf operation. Blasting was okay, but the small base is tiring on the hand unless you stick it to a desk.

Cheap and it shows. Only recommended for those on a limited budget.
ACU Rating: 60%



125+ (£9.99)
A well rounded and suckered base offers both left and right fire buttons, and a handily positioned auto-fire. The stick is microleaf operated, but still gives good control. There's a large button on top of the stick for thumb use, and a slightly smaller finger grip button. Both of these are better than the stick mounted buttons on the Mach I.

Good control on driving games, the 125+ handles well, but alas it falls down quite badly on blasters. Diagonals are hard to achieve and the accurate maneouvring necessary for games of this type just isn't there.

Good in its day, the 125+ doesn't really make the grade any more, and should be considered as a standby stick only.
ACU Rating: 52%

Joystick frenzy time as ACU road tests the latest sticks and measures them up against the established faves.





Star Probe (£14.99)
Initially this looks like Cheetah has taken all the faults of the Mach I to heart and remedied them. The base is even bigger, but easier to hold and lighter. Suckered as standard, with left and right fire buttons. These are wonderfully light and responsive, as are the top stick and front stick mounted buttons. All give positive feedback and are excellent. Even the fire button is correctly labelled and handily positioned.

With the stick being micro-switched it was looking good for the Star Probe until the wobbliness of the stick became apparent. It's scarcely believable that a joystick so perfectly constructed could be let down by having a wobbly stick. But it is. This delivers merely average shoot 'em up performance. Driving games are considerably better, but still not quite the top echelon as the Star Probe should have.

Almost the perfect stick, but dramatically let down by that wobble.
ACU Rating: 80%

THE EUROMAX RANGE

Beeshu Hot Stuff (£9.95)
Euromax has recently signed up Yank company Beeshu and its range of sticks. The first is the Hot Stuff, a gaudy banana yellow and black beast, with microleaf switches, fire buttons left and right, a sturdy shaft, and two largish top mounted buttons.

Okay so it looks horrible, and the shaft is on the wobbly side, do the Yanks know what makes a good stick? Not for racing games obviously, performance was okay, but at times you felt you were strangling the thing.

Shooting was pretty good though, even if the strain on your thumb began to tell. There's a decent auto-fire fitted so even this shouldn't be too much of a problem.

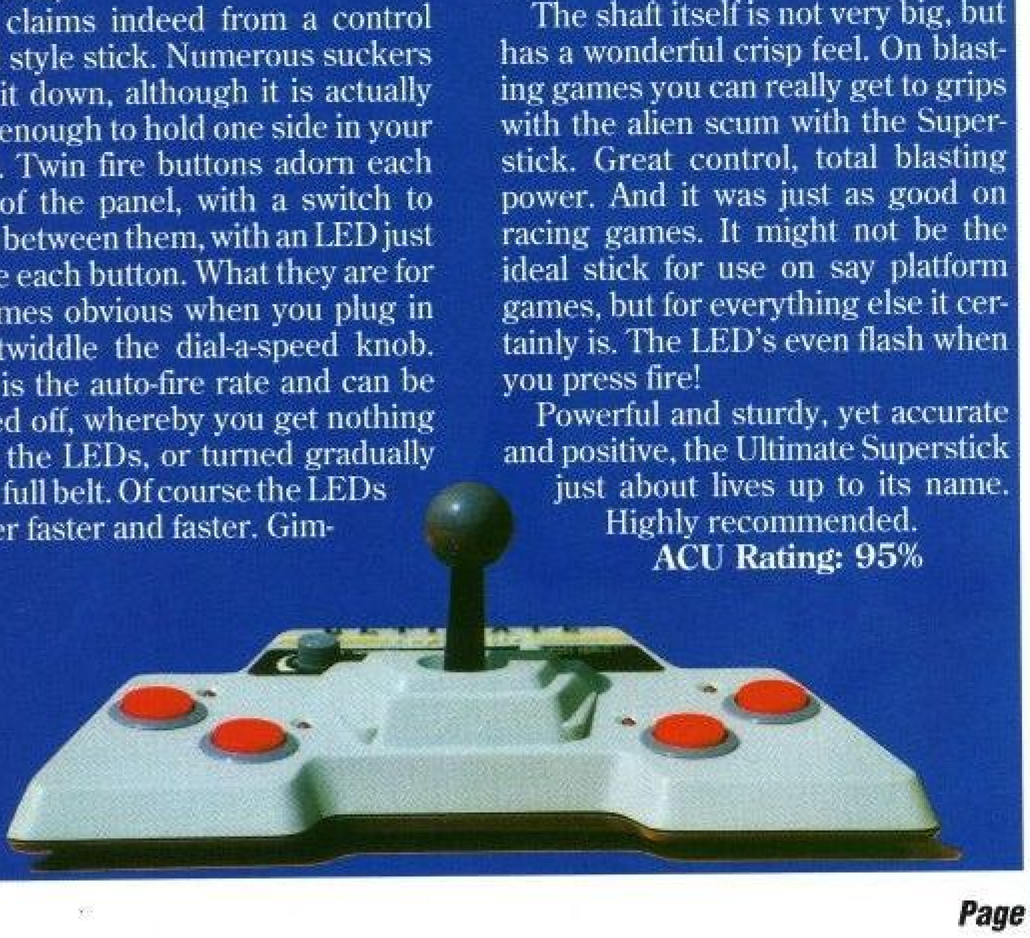


So not too bad in the final analysis but I suppose calling it the Beeshu Luke Warm isn't really on.
ACU Rating: 60%

Beeshu Ultimate Superstick (£31.95)
Bold claims indeed from a control panel style stick. Numerous suckers hold it down, although it is actually light enough to hold one side in your hand. Twin fire buttons adorn each side of the panel, with a switch to swap between them, with an LED just above each button. What they are for becomes obvious when you plug in and twiddle the dial-a-speed knob. This is the auto-fire rate and can be turned off, whereby you get nothing from the LEDs, or turned gradually up to full belt. Of course the LEDs flicker faster and faster. Gimmicky no doubt, but a good gimmick all the same.

The shaft itself is not very big, but has a wonderful crisp feel. On blasting games you can really get to grips with the alien scum with the Superstick. Great control, total blasting power. And it was just as good on racing games. It might not be the ideal stick for use on say platform games, but for everything else it certainly is. The LED's even flash when you press fire!

Powerful and sturdy, yet accurate and positive, the Ultimate Superstick just about lives up to its name. Highly recommended.
ACU Rating: 95%





The Arcade (£18.95)

A simple enough name for a stick of great rear kicking potential. No auto-fire, a cramped base, and just one solitary fire button. But a shaft of hardened steel and pin point accurate microswitches delivering a great shoot 'em up performance.

Alright, so my hand hurt afterwards, but this was simply perfect for fast action games. Pretty good for racing games too, with those microswitches clicking away.

The Arcade doesn't offer any frills at all, but is still a great quality joystick at a reasonable cost. A definite contender for a first choice stick. If you buy something else definitely get this as a backup.

ACU Rating: 83%



The Arcade Turbo (£24.95)

And just in case you wanted the Arcade with frills, there's the Arcade Turbo. It's more comfortable in the hand, and there's a fire button on top of the redesigned shaft. There's also a switch underneath to swap between the fire buttons.

That's the only difference really, except that by making the shaft slightly taller and redesigning the end, if you use the base fire button like me, you'll find the top awkward and obtrusive. If you're a top of the stick button user, then it's the perfect alternative, apart from the fact that there are no suckers on either Arcade stick at all. Fast and nasty all the same.

ACU Rating: 78%

Beeshu Zoomer (£36.95)

Gawds, it's a yoke. While it might look like a reject from Blue Peter from a distance, the Zoomer is actually quite sturdy, sports essential suckers, that great dial-a-speed auto-fire, and fire buttons set on the top of each handle.

To be honest, I was surprised that you could even stay on the road when playing a driving game with this, but it wasn't that bad. It was bad when trying the blasters though. Lurch, wobble, lurch.

Obviously this isn't designed for either of those types of game. It's meant for fighter combat sims, at which it excels. Unlike cheaper yokes the handles return to the centre if you let go, and there is a nice tension to all the movements.

Not recommended for your average game, this is a niche market controller, and in the field of fighter sims you can't go far wrong with the Zoomer.

ACU Rating: 75%





Prof Competition 9000 (£15.95)

A traditional square shaped base with no suckers, left and right fire buttons, and a simple microswitched shaft was on offer from the Prof 9000. With a name like that you might expect a few more features, not the least of which is an auto-fire.

None of which prepared us for the dreadful performance on the shoot 'em up. Moving the joystick upwards was very unresponsive and it really had to be wrestled to guarantee you were going to go in that direction. It made the game unplayable.

Not much better on the driving game either. A general lack of response led to far more crashes than could be attributed to a sudden downturn in player performance.

This stick doesn't flatter to deceive; it doesn't look like much in the first place. Very disappointing.

ACU Rating: 45%

Prof 9000 Deluxe (£34.95)

Finally the auto-fire comes to Euromax joysticks, except in this case it's a button designated 'rapid fire'. If you are right handed and like to use the base mounted fire button then you don't have any choice, you have to use this button.

The shaft is sturdy and microswitched, and comes with a top mounted fire button, and despite looking like a cross between the Arcade Turbo and the Prof Competition 9000, suffers none of the problems of either. The shaft is easy to get to grips with, the base has suckers, and it's relatively pain free to hold.

Performance wise the Deluxe is hard to fault. A solid chunky response from the stick in driving games and accurate positioning and fire in shooters. A fine all round stick, especially for those games requiring a lot of firepower.

ACU Rating: 80%

5·4·3·2·1·ACTION!

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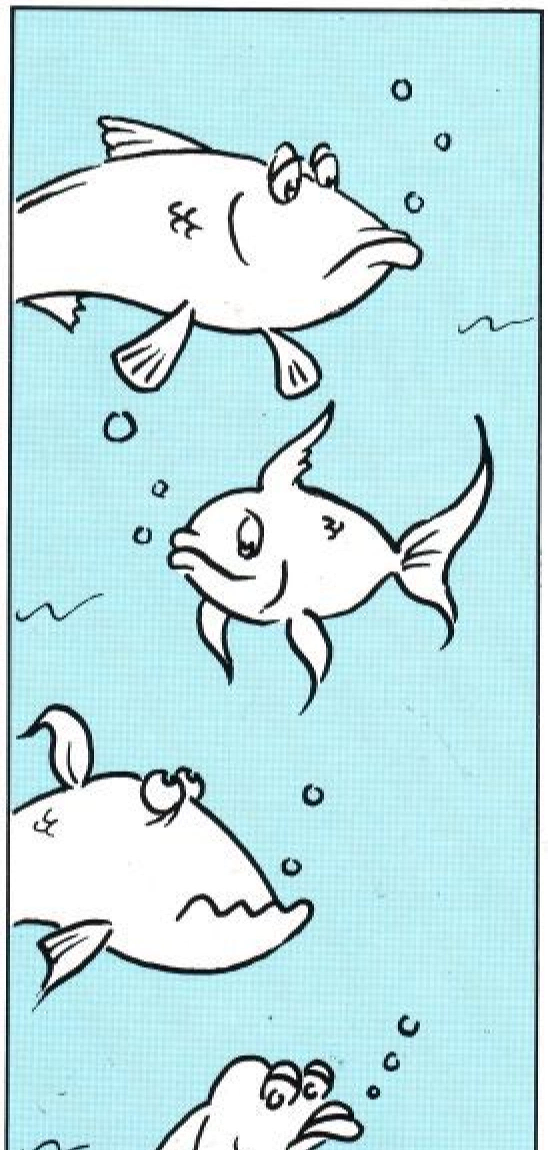


FISHTANK

BY SEAN MCMANUS

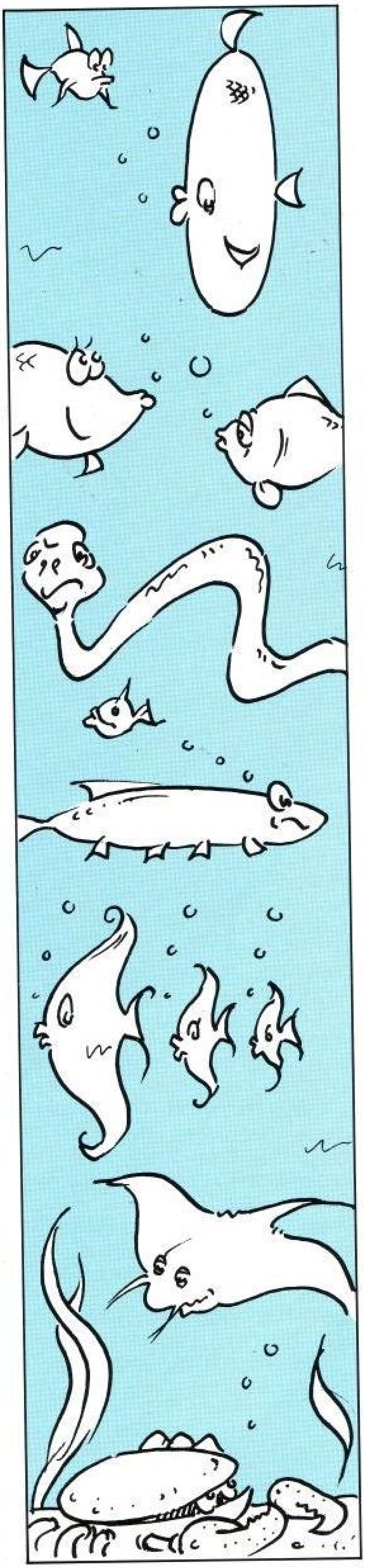
This one may not be the longest of listings but boy are you going to love it. Just like the latest video craze from the States, this excellent routine creates a simulated fishtank environment. Run it and relax, with your own personal fish swimming around in the background. Very clever and a totally brilliant proggy to amuse your friends.

When you are typing it in, don't forget to omit the proofcodes at the end of the lines, as these are only for error checking purposes.



```
10 ' Fish Tank Simulator [F1]
20 ' (C) 1991 Sean McManus - 28th July 1991 [F2]
30 '  [F3]
40 ' It's Madness - with greetings to Sue. [F4]
50 ' [F5]
60 MODE 1:CALL &BC02:INK 0,0:BORDER 0:LOCATE 12,5: [04]
PEN 1:PAPER 0:PRINT"Fish Tank Simulator":LOCATE 11 [04]
,7:PRINT"(C) 1991 Sean McManus":LOCATE 12,17:PEN 2 [04]
:PRINT"Hello.  How are you ?":SYMBOL 255,48,254,22 [04]
,60,116,210,254,16::LOCATE 40,25:PRINT CHR$(255); [04]
70 LOCATE 15,15:PRINT"Polite Notice:":ON BREAK GOS [95]
UB 380:MEMORY 17663:mem=17664:FOR g=1 TO 14:chk=0: [95]
FOR h=1 TO 77:READ a$:a=VAL("&"+a$):POKE mem,a:chk [95]
=chk+a:mem=mem+1:NEXT:READ chk$:IF VAL("&"+chk$)<> [95]
chk THEN PRINT"error in line"30+(g*10):STOP [95]
80 NEXT:CHK=0:FOR g=1 TO 77:READ a$:a=VAL("&"+a$): [48]
POKE 39999+g,a:chk=chk+a:NEXT:IF chk<>&1D07 THEN P [48]
RINT"Error in 180":STOP [48]
90 DATA 01,01,00,1D,08,00,00,00,54,00,00,00,00,00, [92]
00,00,54,00,00,00,00,00,00,00,FC,A8,00,00,00,00,00 [92]
,00,AC,A8,00,00,00,00,00,04,0C,0C,00,00,00,00,00,0 [92]
C,0C,0C,08,00,00,00,04,0C,A6,A6,0C,00,00,00,04,4C, [92]
8C,CC,0C,00,00,00,04,CC,26,66,8C,00,00,913 [92]
100 DATA 00,04,0C,0C,0C,0C,00,00,00,04,1D,0C,1D,0C [3A]
,00,00,00,0C,3F,2E,3F,2E,08,00,00,0C,3F,2E,3F,2E,0 [3A]
8,00,00,0C,7F,2E,7F,2E,08,00,00,0C,7F,2E,7F,2E,08, [3A]
00,04,0C,3F,2E,3F,2E,0C,00,04,0C,1D,5C,1D,0C,0C,00 [3A]
,04,0C,0C,EC,8C,0C,0C,00,04,0C,0C,EC,8C,A36 [3A]
110 DATA 0c,0C,00,04,0C,84,CC,8C,84,0C,00,04,0C,84 [ED]
,4C,0C,84,0C,00,04,48,48,0C,48,48,0C,00,AC,0C,48,C [ED]
0,C0,0C,0C,A8,FC,0C,48,CC,C8,0C,5C,A8,DC,0C,0C,C4, [ED]
84,0C,5C,88,A8,0C,0C,48,0C,0C,08,A8,A8,04,0C,0C,0C [ED]
,0C,00,A8,00,00,0C,0C,0C,08,00,00,00,00,132C [ED]
120 DATA 04,0C,0C,00,00,00,1D,0C,00,00,00,00,00,40 [2A]
,A8,00,00,00,00,00,00,00,00,00,00,D4,A8,00,00,00,0 [2A]
0,00,00,00,00,00,40,EC,A8,00,00,00,00,00,00,00,00, [2A]
00,54,EC,FC,04,08,00,00,00,00,00,00,00,54,EC,FC,0C [2A]
,0C,00,00,00,00,00,00,00,C4,FC,DC,0C,0C,BCD [2A]
130 DATA 08,00,00,00,00,00,00,EC,FC,8C,0C,0C,0C,A8 [67]
,00,00,00,00,00,FC,DC,AC,8C,0C,5C,54,00,00,00,00,0 [67]
0,FC,DC,0C,8C,0C,0C,08,00,00,00,00,40,DC,AC,0C,CC, [67]
0C,0C,80,00,00,00,00,40,EC,0C,0C,CC,0C,48,C0,00,00 [67]
,00,00,54,EC,4C,0C,CC,0C,48,68,08,00,00,1328 [67]
140 DATA 00,54,AC,4C,0C,CC,0C,48,68,0C,00,00,00,54 [1E]
,AC,4C,8C,CC,0C,0C,84,0C,00,00,00,54,0C,4C,8C,4C,0 [1E]
C,0C,0C,0C,00,00,00,54,0C,4C,8C,4C,8C,0C,0C,08,00, [1E]
00,00,04,8C,4C,8C,0C,8C,0C,0C,00,00,00,00,04,CC,0C [1E]
,CC,0C,CC,0C,CF,8A,00,00,00,04,CC,0C,CC,11C1 [1E]
150 DATA 0C,4C,8C,0C,8A,00,00,00,0C,CC,0C,4C,8C,0C [BE]
,0C,0C,08,40,80,00,0C,CC,0C,4C,CC,0C,0C,0C,08,54,F [BE]
C,04,0C,4C,8C,0C,0C,0C,0C,0C,00,D4,CC,AC,0C,4C,8C, [BE]
0C,0C,0C,0C,0C,00,EC,FC,AC,0C,0C,CC,0C,0C,D4,0C,08 [BE]
,00,FC,EC,AC,0C,0C,0C,0C,0C,D4,AC,00,00,14F2 [BE]
160 DATA FC,DC,04,0C,0C,0C,0C,0C,EC,FC,00,00,EC,FC [2E]
,00,0C,0C,0C,0C,0C,5C,DC,A8,00,54,A8,00,00,04,0C,0 [2E]
C,0C,00,EC,DC,00,00,00,00,00,00,04,0C,00,00,54,FC, [2E]
00,1D,0C,00,00,00,00,00,54,80,00,00,00,00,00,00,00 [2E]
,00,00,00,54,E8,00,00,00,00,00,00,00,00,E89 [2E]
170 DATA 00,00,54,DC,80,00,00,00,00,00,00,00,04,08 [15]
,FC,DC,A8,00,00,00,00,00,00,00,0C,0C,FC,DC,A8,00,0 [15]
0,00,00,00,00,04,0C,0C,EC,FC,C8,00,00,00,00,00,54, [15]
```

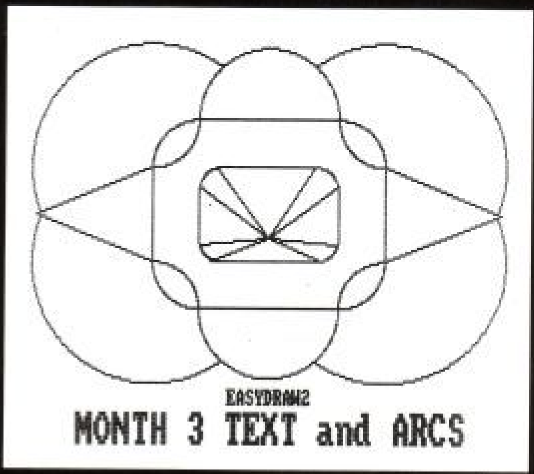
```
0C,0C,0C,4C,FC,DC,00,00,00,00,00,A8,AC,0C,4C,5C,EC [15]
.FC,00,00,00,00,00,04,0C,0C,4C,0C,EC,FC,1288 [15]
180 DATA 00,00,00,00,00,40,0C,0C,CC,0C,5C,EC,80,00 [0B]
,00,00,00,C0,84,0C,CC,0C,0C,DC,80,00,00,00,04,94,8 [0B]
4,0C,CC,0C,8C,DC,A8,00,00,00,0C,94,84,0C,CC,0C,8C, [0B]
5C,A8,00,00,00,0C,48,0C,0C,CC,4C,8C,5C,A8,00,00,00 [0B]
,0C,0C,0C,0C,8C,4C,8C,0C,A8,00,00,00,04,1390 [0B]
190 DATA 0C,0C,4C,8C,4C,8C,0C,A8,00,00,00,00,0C,0C [5E]
,4C,0C,4C,8C,4C,08,00,00,00,45,CF,0C,CC,0C,CC,0C,C [5E]
C,08,00,00,00,45,0C,4C,8C,0C,CC,0C,CC,08,00,00,00, [5E]
04,0C,0C,0C,4C,8C,0C,CC,0C,00,00,00,04,0C,0C,0C,CC [5E]
,8C,0C,CC,0C,00,40,80,00,0Ç,0C,0C,0C,0C,FE1 [5E]
200 DATA 4C,8C,0C,08,FC,A8,00,0C,0C,0C,0C,0C,4C,8C [E3]
,0C,5C,CC,E8,00,04,0C,E8,0C,0C,CC,0C,0C,5C,FC,DC,0 [E3]
0,00,5C,E8,0C,0C,0C,0C,0C,5C,DC,FC,00,00,FC,DC,0C, [E3]
0C,0C,0C,0C,08,EC,FC,00,54,EC,AC,0C,0C,0C,0C,0C,00 [E3]
,FC,DC,00,EC,DC,00,0C,0C,0C,08,00,00,54,17E8 [E3]
210 DATA A8,00,FC,A8,00,00,0C,08,00,00,00,00,00,08 [56]
,04,98,CC,64,30,4C,64,4C,CC,8C,8C,30,24,98,30,98,C [56]
C,4C,CC,4C,8C,98,4C,30,0C,CC,4C,CC,64,8C,98,24,30, [56]
07,04,40,E0,30,00,D0,30,30,20,B0,30,30,20,30,30,30 [56]
,0A,30,30,30,82,30,30,0F,82,10,4B,C3,00,182A [56]
220 DATA 08,04,00,00,E8,00,00,40,00,A0,00,40,00,A0 [EF]
,00,00,D0,00,54,80,00,00,80,50,00,00,80,50,00,00,5 [EF]
0,A0,00,00,07,04,54,00,80,A0,00,80,A0,00,00,00,00, [EF]
E0,C0,A0,00,00,00,00,A0,00,00,80,80,A8,54,00,80,40 [EF]
,00,00,00,00,00,00,00,00,00,00,00,00,00,F23 [EF]
230 DATA DD,6E,00,DD,66,02,DD,7E,04,F5,CD,1A,BC,F1 [E0]
,E5,6F,26,00,29,01,7D,9C,09,4E,23,46,50,59,69,60,4 [E0]
E,23,13,13,46,E1,C5,E5,1A,AE,77,23,13,10,F9,E1,01, [E0]
00,08,09,30,04,01,50,C0,09,C1,0D,20,E8,C9,00,45,03 [E0]
,45,ED,45,4B,47,A9,48,CB,48,E9,48,0B,49 [E0]
240 OUT &BC00,65:OUT &BD00,0:MODE 0:INK 0,1:BORDER [27]
 0:INK &B,0,6:INK 15,0,15:INK 14,26,15:INK 13,15,6 [27]
:INK 12,6,15:INK 6,0:INK 1,26:INK 2,6:INK 3,15:INK [27]
 4,10:INK 5,20:INK 7,24:INK 8,1:INK 9,19:INK 10,21 [27]
:SPEED INK 205,5:FOR g=399 TO 390 STEP -1 [27]
250 PLOT 0,g:DRAWR 640,0,6:NEXT:PLOT 12,388:DRAW 6 [EE]
26,388:FOR g=0 TO 19:CALL 40000,4,g,24:CALL 40000, [EE]
4,g,23:NEXT:FOR g=1 TO 16:READ x,y:CALL 40000,5,x, [EE]
y:NEXT:DATA 5,22,6,22,6,20,7,20,5,21,6,21,7,19,8,1 [EE]
9,10,20,9,19,10,19,11,20,12,21,11,21,11,22,12,22 [EE]
260 FOR 1=1 TO 5:READ x,h:PLOT x+2,32,9:DRAWR 0,h: [FA]
FOR g=1 TO h/40:PLOT x,g*40:FOR h2=5 TO 1 STEP -1: [FA]
DRAWR -RND*(h2*2),RND*(h2*5):NEXT h2,g:FOR g=1 TO [FA]
h/40:PLOT x,g*40,10:FOR h2=5 TO 1 STEP -1:DRAWR RN [FA]
D*(h2*2),RND*(h2*5):NEXT h2,g [FA]
270 NEXT:PLOT 1,399,1:DRAW 1,1:DRAW 639,1:DRAW 639 [DF]
,399:DATA 20,200,600,150,620,200,50,110,130,70 [DF]
280 x=5:y=5:dir=2:CALL 40000,2,x,y:OUT &BC00,65:OU [4B]
T &BD00,40:AFTER RND*150 GOSUB 360:WHILE 1:odir=di [4B]
r:ox=x:oy=y:DI [4B]
290 IF RND>0.8 THEN dir=dir XOR 1 [94]
300 IF dir=3 AND x>1 THEN x=x-1:IF x=1 THEN dir=2 [E3]
310 IF dir=2 AND x<13 THEN x=x+1:IF x=15 THEN dir= [22]
3 [22]
320 IF RND<0.5 AND y>3 THEN y=y-1 [E7]
330 IF RND>0.4 AND y<15 THEN y=y+1 [B8]
340 CALL 40000,odir,ox,oy:IF dir<>odir THEN CALL 4 [D6]
0000,1,x,y:FOR h=1 TO 100:NEXT:CALL 40000,1,x,y [D6]
350 CALL 40000,dir,x,y:EI:FOR h=1 TO 400:NEXT:WEND [7D]
360 CALL 40000,dir,x,y:CALL 40000,1,x,y:FOR g=1 TO [A0]
 1000:NEXT:CALL 40000,6,x-1,y+1:FOR g=y TO 1 STEP [A0]
-1:CALL 40000,6,x-1,g+1:CALL 40000,6,x-1,g:FOR h=1 [A0]
 TO 50:NEXT h,g:CALL 40000,6,x-1,1:CALL 40000,7,x- [A0]
1,0:FOR h=1 TO 50:NEXT:CALL 40000,7,x-1,0 [A0]
370 FOR g=1 TO 1000:NEXT:CALL 40000,dir,x,y:CALL 4 [20]
0000,1,x,y:AFTER RND*1200 GOSUB 360:RETURN [20]
380 MODE 2:INK 1,26:INK 0,0:PEN 1:PAPER 0:LIST [18]
```



TRIUMPHANT ARCS

Glynne Davies talks us through text and arcs in the latest CPC graphics instalment.

Over the last two months we have developed the shell of the graphics package *Easydraw2*, you can draw straight lines and produce boxes. There are two modules to add into the shell this month a text module and a module for producing Arcs (part circles). If you have missed the series so far here is the program you must have before continuing with this month's modules. At the end of next month I will include a list of functions available so that if you have missed the series so far you can find out how the program is used.



Easydraw2 the program so far

```
10 REM EASYDRAW2
20 REM Variables x y (co-ordinates) jump (cursor move distance)
21 REM variables ip (ink pen) ib (ink border/paper) d (display) mde$ (mode selected)
23 REM variable beam (leave line if beam is on)
24 REM Variable ele (Elastic band switch) xf,yf (origin for Elastic band)
25 REM Variables ans$ (Input string) xx (Input position) l (Input length) str (string if 1 numeric if 0)
40 x=320: y=200 :jump=10: ip=13:ib=0: mde$="MOVE"
45 INK 1,ip:INK 0,ib:BORDER ib
50 MODE 2:REM 640x200 graphics
52 WINDOW 1, 79, 1, 1:ORIGIN 0, 0, 0, 640, 384, 0:GOSUB 12000:REM Set up a text window (window) to be the top line. Set up a graphics window (origin) for the remaining screen
60 GOSUB 5070:REM draw cursor
70 WHILE trip=0
80 REM Remove keypress for speed
90 GOSUB 5000:REM Cursor move
100 IF INKEY(53)=128 THEN ip=(ip+1) MOD 27:INK 1,ip:IF ip=ib THEN ip=ip+1:INK 1,ip:REM If CTRL+F are pressed change the Foreground colour
110 IF INKEY(54)=128 THEN ib=(ib+1) MOD 27:INK 0,ib:BORDER ib:IF ib=ip THEN ib=ib+1:INK 0,ib:BORDER ib:REM If CTRL+B are pressed change the Background colour and the Border colour
120 IF INKEY(61)=128 THEN d=(d+1) MOD 2:LOCATE 12,1:PRINT SPACE$(16);:REM If CTRL+D are pressed switch on x,y Display
130 IF d=1 THEN LOCATE 12,1:PRINT SPACE$(16);:LOCATE 12,1:PRINT "X=";x;" Y=";y;:REM Display X and Y
140 IF INKEY(50)=128 THEN GOSUB 5070:x=320:y=200:GOSUB 5070:IF d=1 THEN LOCATE 12,1:PRINT "X=";x;" Y=";y;:REM Reset X to 320 and Y to 200
150 IF INKEY(54)=0 THEN GOSUB 11000:beam=1:a=x:b=y:GOSUB 12000:REM Reset all the function variables to zero (line 11000) and Reprint status line
160 IF beam=1 THEN GOSUB 4500:a=x:b=y
170 IF INKEY(38)=0 THEN GOSUB 11000:GOSUB 12000
180 IF INKEY(58)=0 THEN GOSUB 11000:set=0:mde$="ELASTIC":ele=1:GOSUB 12000:REM Press E to switch on Elastic band F to Fix a line
190 IF ele=1 THEN GOSUB 6000
200 IF INKEY(53)=0 AND ele=1 AND tl=0 THEN a=xf:b=yf:set=0:GOSUB 4500:REM Press F to Fix the line from Elastic band
210 IF INKEY(59)=160 THEN CLG:GOSUB 5070:REM Press CTRL + SHIFT + W to clear screen and replace cursor
220 IF INKEY(45)=0 THEN str=0:xx=12:ask$="PLEASE ENTER THE JUMP LENGTH":1=3:GOSUB 3000:jump=VAL(ans$):GOSUB 12000:REM Press J to change jump size. This is numeric and the str variable is set to 0. (str xx ask$ and 1 are all needed for the Input routine)
500 WEND
3000 REM Input routine
3010 ans$=" ":GOSUB 12000:REM Reset ans$ to null and clear status line
3020 LOCATE xx,1:PRINT ask$+" "+CHR$(246)+SPACE$(1)+CHR4(247);:REM Print the question and answer space
3025 IF str=0 THEN 1iml=47:1im2=58:ELSE 1im1 31:1im2=127
3030 k$=" ":xx=xx+LEN(ask$)+2:REM reset xx to answer position
3040 WHILE ASC(k$)<>13:REM Loop until Enter is pressed
3050 k$=" ":WHILE k$=" ":k$=INKEY$:WEND:REM Loop to wait for keypress
3060 IF ASC(k$)>1im1 AND ASC(k$)<1im2 AND LEN(ans$)<1 THEN ans$=ans$+k$:REM Accept any keyboard character into the string if the string is below 1. If str=o then numbers only
3070 IF ASC(k$)=127 AND LEN(ans$)>0 THEN ans$=LEFT$(ans$,LEN(ans$)-1):REM If DEL is pressed remove a character if one exists
3080 LOCATE xx,1:PRINT SPACE$(1);:LOCATE xx,1:PRINT ans$;:REM Remove old string and replace with the new string
3090 WEND
3100 GOSUB 12000:REM remove information
3110 RETURN
4500 REM draw line (BEAM)
4510 GOSUB 5070:REM Remove cursor
4520 MOVE a,b
4530 DRAW x,y,1
4540 GOSUB 5070:REM Replace cursor
4550 RETURN
4990 REM
*************************
```

```
5000 REM Cursor move
5010 IF INKEY(1)=0 THEN GOSUB
5070:x=x+jump:GOSUB 5070
5020 IF INKEY(8)=0 THEN GOSUB
5070:x=x-jump:GOSUB 5070
5030 IF INKEY(2)=0 THEN GOSUB
5070:y=y-jump:GOSUB 5070
5040 IF INKEY(0)=0 THEN GOSUB
5070:y=y+jump:GOSUB 5070
5060 RETURN
5065 REM
*************************
5070 REM Draw cursor
5100 LOCATE 1,1:PRINT
CHR$(23)+CHR$(1):REM set xor
mode
5110 MOVE x-10,y:DRAW x+10,y,1
5120 MOVE x,y-10:DRAW x,y+10,1
5130 LOCATE 1,1:PRINT
CHR$(23)+CHR$(0):REM Reset
graphics to normal
5140 RETURN
6000 REM Elastic Band
6010 LOCATE 1,1:PRINT
CHR$(23)+CHR$(1):REM XOR mode
6020 IF set=0 THEN
xf=x:yf=y:set=1:MOVE xf,yf:DRAW
x,y,1:REM Fix xf and yf when set=0
6030 MOVE xf,yf:DRAW x,y,1
6040 FOR w=1 TO 10:NEXT:REM a
short pause
6050 DRAW xf,yf,1
6060 LOCATE 1,1:PRINT
CHR$(23)+CHR$(0):REM Normal
Mode
6070 RETURN
11000 REM Reset all function vari-
ables to zero
11010
beam=0:ele=0:f1=0:rub=0:xy=0:tl=0:tb-
0:t=0:mde$="MOVE"
11020 RETURN
12000 CLS
12002 IF beam=1 THEN
mde$="BEAM"
12004 IF ele=1 THEN
mde$="ELASTIC"
12006 IF jump=0 THEN jump=1:REM
Ensure jump exists
12010 LOCATE 1,1:PRINT
"Jump=";jump;:REM Distance the
cursor moves
12020 LOCATE 70,1:PRINT
mde$;:REM Working mode selected
12030 IF d=1 THEN LOCATE
12,1:PRINT SPACE$(16);:LOCATE
12,1:PRINT "X=";x;" Y=";y;:REM
Display X and Y
12040 RETURN
```

Save as "EASY2" and test by Running.

Text

All graphics packages need a text routine to allow text to be mixed with the drawings or pictures but most of the packages fail to give a good way of placing the text on screen (i.e. Select your point and type in the words). This makes planning the exact position impossible. In this text routine you can move the text to any position on screen and Fix it in position when correct, you also have the choice of two sizes of text.

Considerations

1 Text needs to be placed anywhere on the screen. This can be achieved by drawing a box around the text and fixing the box to the cursor. The box can then be moved to the correct position before the text is placed.
2 Two sizes of text will be used. (More styles could be added later)
3 The two sizes of text should be available when the box is fixed to the cursor, selected by a key press.

New Variables

text	If text=1 some text exists
texl	Text length is set to 8 for single and 16 for double size.
hig	Text HeIGht for box
pk	ASCII code of the character to peek in Double height routine.
hb	High Byte
lb	Low Byte
mov	Distance to move the cursor
nn	Nimble to byte conversion (A Nimble is half a byte, 4 bits)

The Listing (ensure the program so far "EASY2" is in the memory)

```
15 SYMBOL AFTER 32
230 IF INKEY(51)=0 AND text=0
THEN mde$="TEXT":GOSUB
12000:xx=12:str=1:ask$="TEXT=":
1=40:GOSUB 3000:IF LEN(ans$)>0
THEN GOSUB
11000:text=1:texl=8:n$=ans$:hig=16:GOSUB
5100
240 IF INKEY(53)=0 AND text=1
THEN GOSUB 2000:REM Press F to
Fix the Text in position
250 IF text=1 THEN GOSUB 15000
260 IF text=1 AND INKEY(51)=0
THEN tms=(tms+1) MOD
2:texl=8:hig=16:IF tms=1 THEN
texl=16:hig=32
2000 REM Position text
2010 TAG:REM Set the text at the
graphics position
2020 IF hig=32 THEN GOSUB 20000
ELSE PRINT n$;:REM Choose
Double or single
2030 TAGOFF:REM Switch back to
normal text
2040 RETURN
3005 FOR n=1 TO 20:CALL
&BB1B:NEXT:REM Flush the
keyboard buffer
5080 IF text=1 THEN RETURN
11005 IF text=1 THEN
text=0:GOSUB 5070:REM Switch off
text and replace the cursor
15000 REM text box
15005 LOCATE 1,1:PRINT
CHR$(23)+CHR$(1);
15010 MOVE x,y
15020 DRAW
x+LEN(n$)*texl,y,1:DRAW
x+LEN(n$)*texl,y-hig,1:DRAW x,y-
hig,1:DRAW x,y,1
15030 DRAW
x+LEN(n$)*texl,y,1:DRAW
x+LEN(n$)*texl,y-hig,1:DRAW x,y-
hig,1:DRAW x,y,1
15035 LOCATE 1,1:PRINT
CHR$(23)+CHR$(0);
15040 RETURN
19990 REM Double height Double
width routine
20000 FOR n= 1 TO LEN(n$)
20010 pk=ASC(MID$(n$,n,1))
20020 FOR set=1 TO 8
20030 p=PEEK(HIMEM+(8*(pk-
32))+set):REM set p to the byte
20040 GOSUB 20150:REM Change to
two nibbles (a nibble is half a byte (4
bits))
20050 NEXT
20060 REM convert the characters
255, 254, 253, 252 into the four
quarters of a block
20070 SYMBOL
255,hb(1),hb(1),hb(2),hb(2),hb(3),hb(3),hb(4),hb(4)
20080 SYMBOL
254,lb(1),lb(1),lb(2),lb(2),lb(3),lb(3),lb(4),lb(4)
20090 SYMBOL
253,hb(5),hb(5),hb(6),hb(6),hb(7),hb(7),hb(8),hb(8)
20100 SYMBOL
252,lb(5),lb(5),lb(6),lb(6),lb(7),lb(7),lb(8),lb(8)
20110 MOVE x+mov,y:PRINT
CHR$(255);CHR$(254);
20115 MOVE x+mov,y-16:PRINT
CHR$(253);CHR$(252);
20120 mov=mov+16
20130 NEXT
20135 mov=0
20140 RETURN
20150 REM change to two nibbles
20160 lb=p AND 15:a=lb:GOSUB
20190:lb(set)=nn:nn=0
20170 hb=p AND 240:a=hb/
16:GOSUB 20190:hb(set)=nn:nn=0
20180 RETURN
20190 REM change nibbles TO bytes
20200 IF a=0 THEN RETURN
20210 IF a-8>=0 THEN
nn=nn+192:a=a-8
20220 IF a-4>=0 THEN nn=nn+48:a=a-
4
20230 IF a-2>=0 THEN nn=nn+12:a=a-
2
20240 IF a=1 THEN nn=nn+3
20260 RETURN
```

A look at the Listing

Line 15 SYMBOL AFTER 32 brings

the whole character set into memory.
Line 230 Key T to type in text.
Line 240 Key F to Fix text in the chosen position.
Line 250 If text is available draw box for text size.
Line 260 Key T to change from single to double height and back when the box is displayed.
Line 2010 Fix the text at the graphics cursor
Line 2020 Use double height and width routine.
Line 2030 Back to normal text printing at the text cursor.
Line 3005 Because of switching from moving the cursor to text or an input the keyboard buffer needs to be emptied.
Line 15005 XOR mode.
Line 15010 Draw a box and remove it 15010-15030.
Line 20000 A loop for all characters in the text.
Line 20010 Find the ASCII code for each character.
Line 20030 From the character table find the eight bytes from which the character is built.
Line 20040 Each byte is converted to two bytes so that when the two bytes are placed next to each other they represent the original byte but twice the width.
Line 20070- Convert characters 255, 254, 253, 252 to new shapes.
Line 20110- Display out the four new characters to make one character.
Line 20120 Increase position variable.
Line 20160 Convert to nibbles.
Line 20200- Take the nibble and convert to a byte.

This routine is quite complicated and will probably need some studying before it becomes clear.

Save the listing as "6TEXT" and then run to see the result

Press T to Type in text, when you press Enter a box will appear at the cursor. The box is the size of your text. Pressing T a second time will change the text from single to double size.

Press F when the box is in the correct position to Fix the text at that spot. press any other function to leave the text function i.e. M

ARC

The ability to draw arcs in any direction and of any size poses a great deal of problems in graphics programs. I have attempted to make this as easy as possible while giving an extremely flexible routine with most of the information visible on screen.

Considerations

1 The input of information must be clear. A line will be used showing the radius.
2 The radius line needs to be able to be rotated, increased or decreased, the start position marked and the final position marked.
3 Typed input of the radius must also be possible.
4 The whole arc should be movable until fixed into position.

New Variables

r Radius
angle Angle around circle in radians
s Angle where the arc is to start
f Angle where the arc is to finish
start Toggle for start and finish (start=0 no start selected. start=1 Start selected)

The Listing (Ensure '6TEXT" is in memory before typing in the listing)

```
26 REM Variables angle (Arc angle) r (radius)
270 IF INKEY(69)=0 THEN GOSUB 11000:mde$="ARC":GOSUB 12000:GOSUB 10000:GOSUB 11000:GOSUB 12000
10000 REM ARC
10010 angle=0:IF r=0 THEN r=20:REM Set a radius if none exists
10030 WHILE arc=0
10040 IF INKEY(60)=0 AND start=0 THEN s=angle:xy=1:MOVE x,y:DRAW x+r*SIN(angle),y+r*COS(angle),1:start=1:REM Press S for the start position of the arc
10050 IF INKEY(53)=0 AND start=1 THEN arc=1:f=angle:REM Press F at the Finish position of the arc
10060 IF INKEY(39)=0 THEN angle=angle-0.05:REM Move the arm anti clockwise KEY<
10070 IF INKEY(31)=0 THEN angle=angle+0.05:REM Move the arm clockwise KEY>
10080 IF INKEY(28)=0 THEN r=r+4:REM Increase the radius KEY +
10090 IF INKEY(25)=0 AND r>4 THEN r=r-4:REM Decrease the radius KEY -
10100 IF INKEY(37)=0 THEN xx=12:str=0:1=3:ask$="Enter the Radius =":GOSUB 3000:r=VAL(ans$):REM Pess K to Key in the Radius
10110 IF start=0 THEN GOSUB 5000:PRINT CHR$(23)+CHR$(1);:REM cursor keys
10120 MOVE x,y
10130 DRAW x+r*SIN(angle),y+r*COS(angle),1
10140 MOVE x,y
10150 DRAW x+r*SIN(angle),y+r*COS(angle),1
10160 WEND
10170 IF f<s THEN inc=-0.02 ELSE inc=0.02
10180 MOVE x,y:DRAW x+r*SIN(s),y+r*COS(s),1
10190 PRINT CHR$(23)+CHR$(0);
10200 MOVE x+r*SIN(s),y+r*COS(s)
10210 FOR n=s TO f STEP inc:REM Draw the ARC
10220 DRAW x+r*SIN(n),y+r*COS(n),1
10230 NEXT
10240 arc=0:start=0:REM reset variables
10260 RETURN
```

A Look at the Listing.

Line 270 Select the Arc function by pressing A.
Line 10010 Ensure a radius exists.
Line 10030 Arc loop.
Line 10040-10100 Check for key presses for the Arc options.
Line 10110-10150 Draw radius setting line (XOR).
Line 10170-10230 Erase radius line and draw Arc.

The Arc is drawn using trigonometry, the radius is the hypotenuse, x and y are the opposite and adjacent.

Save as "EASY3" and then "RUN"

Instructions for use

When key "A" is selected a line appears vertically from the cursor, this is the radius of the arc. The radius of the arc or position can be altered in the following ways.

+	Increase the radius.
-	Decrease the radius.
<	Rotate anticlockwise.
>	Rotate Clockwise
K	Keyed input (Just type in the size of radius)
S	Mark the Start of the arc.
F	Mark the Finish of the arc after the start has been selected and draw the arc.

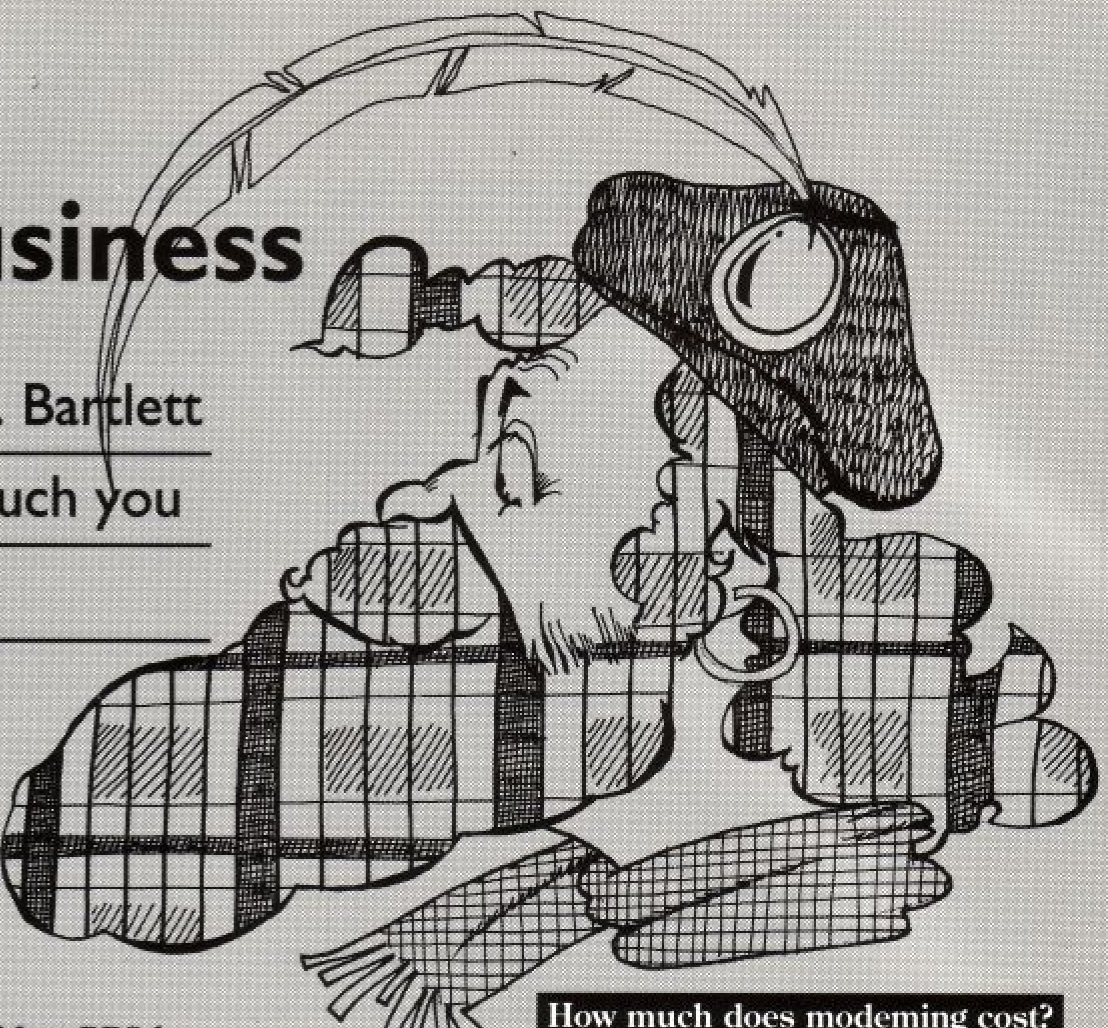
The direction of the arc is controlled by the setting of the Start and Finish. Move clockwise after setting the start and the arc will be drawn in a clockwise direction when F is pressed. For anticlockwise plotting of the arc move anticlockwise after setting the start.

Arrow keys Move the radius centre to any position.

That's it for this month. Please study the listing and enjoy yourselves creating pictures. You can draw a full circle with the arc routine but next month's modules will deal with circles and shapes and a system of erasing unwanted areas of the drawing.

Bye for now.

Down to Business



Time to get dialling as Mr. Bartlett demonstrates just how much you can get for your money.

Well last month was slightly heavy going, as I showed how to call up a Bulletin Board. This follows on from there and shows what you might find upon logging on to a typical BBS. This is, though, a little bit easier.

On your first time calling it, the first thing you'll probably see upon being answered is a 'logon screen' of the name of the BBS. Then you'll be asked for your name, and a password to use on future use of the system. I don't have to tell you that it's a good idea to keep your password secret from everybody except your bestest friend (and anyone holding a knife at your throat!). You are then often asked to 'register'. This usually involves entering information about yourself and your computer. Bear in mind that the sysop can deny you use of his BBS if you lie or simply if he/she doesn't like you! Beware! Some BBSs take time to set you up as a standard user on their system – you may, after registering, find that you have to hang up and call back in a day or so before being able to use most of the BBS facilities. This can be a bit of a disappointment, but bear with it! Phone again later and continue where you left off. Next, it's likely that you'll see some BBS rules or policies, and then standard system bulletins. These are texts written by the sysop, giving new information on their BBS. Now comes the good bit.

Most Bulletin Boards operate through a text menu system. The BBS's computer sends to you (through modem and phone line) the text making up menus etc. Your CPC and modem sends to it any keypresses you type. A typical BBS 'Main Menu' might look like this:

Most BBS have file and message 'areas' or 'sections'. The file areas contain public domain and shareware files which you can download (transferring files from someone to yourself, over a phone line).

As a guide, it takes about 25 minutes to download 338K of data at 2400bps (see box). At current British Telecom phone rates, that costs 35p on a local call, 150p at long distance (b1 rate), or 200p for a long distance (b rate) call. Even for the expensive call, it's still cheaper than most public domain software services (between £1.50 and £2–3), and this makes using a modem to get hold of your PD software worthwhile.

Okay. How do I find out what files there are and see if there're any that I want? you may (or may not), be asking. Well, I reply. I then go on to say that you need to locate a files menu. This is usually selected from the BBS's Main Menu (in the menu below, for example, by typing F and pressing Return). There will probably be between 3 and 60ish file 'areas'. A file area is a directory or catalogue of files (rather like a CP/M user area), all associated with some particular computer and/or topic. Look for an Amstrad CPC or CP/M file area (and hopefully there will be one), and select it. This should simply be a matter of typing the corresponding letter to the file area you want to select. Now

MAIN:

M)essage section	F)ile Section	B)ulletin	S)tatistics
R)egister	Y)ell for SysOp	C)hange setup	H)istory
L)ist Users	U)sage Stats	N)et 259 BB's	W)ho's online
G)oodbye (LogOff)	?) for HELP		
Select:			

How much does modeming cost?

It's often quite useful to know before hand how much it will cost to download a file that you're wanting from your local BBS. Some points we need are:

a) Say that the file is K kilobytes in length

b) you call the BBS with your modem set to speed Speed bits per second (e.g., 300, 1200, 2400).

c) It takes 10 bits to send each byte (one 1024th of a Kb)

d) Each protocol has an average efficiency Eff (the percentage of bytes transferred that is actual data of the file, and not code bytes). Zmodem is about 96%, Xmodem/X 1K = 70%, Ymodem = about 85%.

The time to download the file will be

Time = (K*1024) / ((Speed/10) * (Eff/100)). British Telecom charges 5p per unit for different lengths of time (=Utime) depending on time of day and distance of call. Currently you get (at cheap rate, 6pm-8am) 220s for a local call, 50s for a 'b1' call, and 38s for a 'b' call.

So cost Cost (in pence) = Time/Utime * 5 rounded up to the next 5p. Righto, so how long can you be on the phone for if, instead of spending £10 on a game, you spend it on phoning your local BBS?

Units = 1000p/5p = 200. Time = Units * 220 = 44000s = 12.2 HOURS! A little maths shows you that if you spent all that time downloading software with Zmodem at 2400bps you'd have:

K = Time * (Speed/10) * (Eff/100) / 1024 = 9900K = 29 full 3" discs! What more can I say?

list the files, and if there are any that you'd like then why not download them? Pay attention to the file's length – the longer it is, the longer it'll take to download, and the larger the cost will be.

To download, select the download option on the BBS, and then tell the BBS which 'communications protocol' you want to use. A protocol is a signalling or coding system by which one piece of comms software (e.g. ZMP) communicates and cooperates with another (e.g. a BBS) to send your file error free. There are several 'standard' protocols in common use, including Zmodem, Ymodem, Zmodem 1K and Xmodem. I've put these in order of speed, Zmodem being the fastest. Obviously its best to use the quickest protocol, but some BBSs don't support some of the later protocols, notably Zmodem – ZMP can handle all those mentioned. Now enter the file's name, and tell ZMP that you want to download (press ESC and type R), and which protocol you decided on, and away it goes – sit back and wait, and get coffee or feed the cat (if you don't drink coffee or have a cat, thumb through this magazine).

The message or mail areas (different areas for different subjects) can allow you to (you guessed it) send and receive messages to and from other users of the BBS. Many BBSs support 'echomail'. On these boards, some message areas are echoed around the country and world, and so you can talk to people far and wide for just the cost of a local call. This can be very useful for sorting out problems with software or hardware on your CPC – just drop a line to someone you know who could help, or else address it to 'All' so everyone can read it. Of course if you want people to answer messages that you send, it's a good idea always to answer any pleas for help if you can.

That's all I've got space for, let alone time for, I'll go into more detail on the mail section later on. For now, here are some more BBSs. Cheerio.

Aspects	061 729 0260	Broughton	ABCDN
BBSs that are listed as having CP/M software			
Data Network	081 478 5464	Singham	ABCDN
Chase WUG	0543 871562	Hednesford	ABCDN
Wolves BBS	0902 745337	Wolverhampton	ABCDN
Advance OPUS	0482 586285	Hull	ABCDN
MBBS Leconfield	0964 550745	Beverlay	ABCDN
Microlog	0422 71921	Halifax	ABCDN
North Yorks QBBS	0423 868065	Knaresboro	ABCN

BITS

For Sale

FIRMWARE GUIDE for the CPC 464, also Devpac, RS232C Interface, leads and manual. All boxed, all Amstrad/Amsoft gear, excellent condition. What are they worth? Ring 0227 272671.

OVER 50 ORIGINAL Amstrad games on tape, including Pipe Mania, Captain Blood, Exolon and Monty Python. Worth over £450, will sell for £50. Telephone 0480 811045 and ask for James.

ON DISC Pinball Magic, Afterburner, Shadow Warrior, Sly Spy, Fiendish Freddy's Big Top. Light Gun for 464 and 6218 (not Plus) £15 + games. Disc games from £3.50 to £7.50. Mick Williams, 78 St Pauls Road, Chichester, W.Sussex. PO19 3DB. Tel: 0243 773940.

FIVE GREAT GAMES in M/Code, good graphics, great playability, reviewed AOK issue 4. £2.50 if you supply disk, or £4.90. Tape £2.50. Kevin Heywood, 18 Sinclair Avenue, Banbury, Oxon. OX16 7DW.

ACU all issues from Jan. 1987 to Dec. 1990. Offers? Unused JY3, £10. MP2 £15. MP3 £25. Used but perfect DMP2160 £75 plus P+P. Tel: 0483 771499.

FOR SALE Adidas Championship Football on disk. The Train (cass) and Pub Trivia Quiz (cass) £9 the lot. Not compatible with the Plus machine.

CPC 464 colour monitor, stereo speakers, Multiface 2, ram music machine, around 60 magazines. Over 200 games, all worth over £850, will sell for £300. No offers. Telephone Mark on 0254 852814.

AMSTRAD CPC128 colour monitor, printer (DMP2000), stereo system plus £1000 disc software and magazines. All for best offer over £399. Fantastic value as must sell to make space. Telephone Paul on 0488 38395.

FOR SALE FD1 second drive. 10 months old with lead. As new, hardly used. £70 ono. Telephone 0244 812041.

GRAPHIC ADVENTURE Talisman of Lost Souls. Over 70 locations to explore. "A very enjoyable adventure...82%" Artificial Intelligence Issue 2. Amstrad CPC/Plus: £3.50 tape, £5 disc. Cheque/PO to: T.Kingsmill, 202 Park Street Lane, Park Street, St. Albans, Herts. AL2 2AQ. Overseas, add £1.

OFFERS PLEASE Soft 968 Firmware Guide. CWA 1987 and 1988. ACU 1987 to date. AA 1987 to date. All with binders. MP2 modulator. R.Jones, 8 Taylor Road, Snodland, Kent ME6 5HH.

FOR SALE 464 computer, disk drive, 64K memory expansion, Green Screen monitor, MP1 modulator, tapes, discs, joystick. Offers over £200. Bargain. Will split. Phone 051 727 7523. You pay postage.

PACK OF 10 3.5" discs DS/DD and labels. Free P&P. Send cheque for £7 per 10. Any amount. Also Mini Office II cassette as new £6. Write to R.J.Amison, 56 Drubbery Lane, Burton. Stoke-on-Trent. ST3 4BH or ring 0782 318548 for details.

Wants/Swaps

I HAVE Amstrad Action 3 onwards (2 missing). Computing with Amstrad (2 missing). 40 ACUs to swap for hardware e.g. Vidi Digitiser or Spectrum +2. Call Joe on 0274 543063.

WANTED Handbook for the CPC464 (Amstrad). Telephone Paul on 031 661 4929.

WANTED CPC basic tutor book. Instructions for Tas-Spell and Amsoft Screen Designer. Will pay cash or new Norwegian mint stamps. Please write first to Tor Sjursen, Furuvegen 10, N-4250, Kopervik, Norway.

WANTED MP2 modulator for CPC464. Phone 0685 814861.

WILL SWAP Arcadia, Operation Thunderbolt, Chase HQ, NZS, for any two of Lords of Chaos, Total Eclipse 1/2, Cyberball. Phone sunday mornings for Mark on 041 942 2304.

DESPERATELY WANTED MP3 modulator in excellent condition. Phone 0606 842002 any evening and ask for Craig.

WANTED CPC 6128 with colour monitor will pay cash. Phone 081 300 1188 daytimes, or leave phone number. George Pullar.

DESPERATELY WANTED CF-2 Amstrad disks. Willing to pay. Contact Michael Pacione at 28 Elizabeth Acenue, Milton of Campsie, Glasgow. G65 8HT immediately, or as soon as is humanly possible.

SWAP 3D kit, Pandora, Master Calc, Cash Book, Ace, Pipe Mania, Smugglers Cove, Rogue Trooper for DDi-1 disc drive or sell for £40 plus postage. Phone John on 081 533 3793 now.

WANTED Pu[illegible]are. Any programs welcome. I will return all cassettes and discs with some of my own programs. Contact Stewart Eversham, 154 Thorne Road, Wheatley Hills, Doncaster. DN2 5AE.

SWAP Rick Dangerous II for Man. Utd in Europe, Switchblade or Hero Quest. Write to: Manjinder Sandju, 15 Morris Drive, Whitnash, Leamington Spa, Warks. CV31 2RQ.

Services

DIZZY SOLUTIONS for Dizzys 1,2,3 and 4, including maps. £1 each or £3.50 for all four. Send anSAE to Iain Revill, 43 Paddock Close, Calverton, Notts. NG14 6GJ.

CHEAP ADS, penpals, swaps, for sales, fanzines etc... Send two second class stamps for details to D.L.O'Gelsby, 59 Springfield Street, New Basford, Nottingham. NG7 7DU

HELP GIVEN on Dizzy's 1-4. Fast Food, Kiwk Snax and Panic. 50p each. Write to M.Pacione, 28 Elizabeth Avenue, Milton of Campsie, Glasgow. G65 8HT. For full list or send money if help wanted.

I WILL CREATE a quality loading screen for any game you have written. Tape only. Send 75p, SAE, game on tape and blank tape to Joe Walters, 8 Chater Road, Oakham, Leics. LE15 6RY.

PROGRAM to list 540+ multiface pokes. Choice of output to screen or printer. Send blank disc, £1 and SSAE to Stephen Muddell, 3 Bexhill Road, Eastbourne, Sussex. BN22 7JH.

HELP GIVEN on Dizzy 1+3. Maps etc.... Help wanted on Dizzy 2, maps, hints, tips, pokes etc. Pokes for a number of games. Send SAE for details to Teresa Guy, 123 Wolverhampton Road, Cannock, Staffs, WS11 1AR.

DEMON PD Software library-Write with SSAE for catalogue to 47 Hilton Avenue, Hall Green, Birmingham. B28 0PE.

HELP OFFERED on all aspects of BASIC and assembly language programming. Don't forget to send an SAE. San McManus 286 Chertsey Rise, Stevenage. Herts. SG2 9JQ.

CONVERT your 464 to 6128. Keep 464 equipment and buy 6128 programs. Both will work. Microchip conversion carried out. All you need is disc drive. Example Stop Press DTP on 464. Contact R.J.Amison, 56 Drubbery Lane, Burton, Stoke on Trent. ST3 4BH. 0782 318548.

I HAVE STARTED A BUSINESS for people who require tailor-made programs for all CPCs. Also, does anyone have a Firmware Guide for the 464 to lend. Contact Mr.Manning, 9 Steerforth Street, London SW18 4HH.

WOW SOFTWARE is a company selling new and re-released adventure games for the CPC. Send SAE for the latest list to 78 Radipole Lane, Weymouth, Dorset. DT4 9RS.

AMSTRAD COMPUTER PARTS available for the entire range. Plus many computer accessories available. Just call me or write to J. Hayward, 53 Eny Road, Cardiff. CF5 2JF. 0222 554369.

Fanzines

NEW FANZINE for the Amstrad and C-64 tape. We will review PD, so please send any PD and other software for review to R.Stedman, 8 Wulfruna Gardens, Finchfield, Wolverhampton WV3 9HZ.

CROCO+ The European fanzine for the Amstrad 6128 is here! 720K of hints, tips, reviews, pokes and interviews. Please send a 3" disk, £1 and SSAE to Songyow Ly, 8 Wooderson Close, South Norwood, London SE25 6JP.

LFACC printout. Cheats, Beginners' pages competitions, PD, M.C/BASIC, adverts, picture pages, gossip, reviews etc. Only 70p. Add 20p if overseas. Alex Banks, Tickeywood, Crapstone, Yelverton. Devon. PL20 7PW. Tel: 0822 852085.

ADVENTURER'S HERALD Out now, with news, reviews and just about everything to do with adventure. Only 80p from PO Box 522, Tweedale, Telford, Shropshire. Any budding reviewers please get in touch.

CPC FANZINE called Play Mates. Full of reviews, tips, pokes and Bonzo news, with P&P just £1. Carl Surrey, 37 Fairfield Way, Barnet, Herts. EN5 2BQ.

AOK Fanzine. Includes features, reviews, type-ins, small projects and more. Send 60p (includes P&P) to Paul Escott, 31 Colebrooke Road, Shriley, Solihull, West Midlands B90 2LB.

Penpals

DOES ANYBODY who lives in the Kircaldy, Fife area want to come along to my house in the Glebe Park/Baulsusney Road area and share programs and games? Contact Ross Anderson, 12 Maria Street, Kircaldy, Fife, Scotland.

CPC PENPALS wanted to swap games or demos on disc or tape. Send your lists to Carl Wilson, 64 Fishponds Road, Kenilworth, Warks CV8 1EZ. Greetings to NWC and CBS.

PENPALS WANTED to swap games and demos on disc. Any age, any country. Help also given on new and old games. Write to Richard Wildey, 41 Enmore Gardens, London SW14 8AF.

So there you have it, yet another wild assortment of goodies, penned by yourselves, for yourselves. Take a good look through and see if there's anything you need. If not, then write in telling us what you want and we'll make sure it gets an airing.

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Please send coupon to ACU, 116-120 Goswell Road, London EC1V 7QD. Please place this ad in the next available space in Bits 'n' Pieces.

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The cost of 1-30 words inclusive is absolutely FREE for private ads in Bits.
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THE SHAPE OF THINGS TO COME

Christmas is-a-coming and you are the ones who are going to be getting fat, with a veritable feast of goodies in store for the Festive Season. Read on…

KIT KRAZY
This is your chance to win one of 25 incredible do-it-yourself joysticks, courtesy of Sonmax/Power Play. Next month, we'll be giving you the low-down on how to put the beasties together, together with a voucher to claim your free stick. Fill it in and send it fast, before stocks run out. If you're a winner, we'll let you know immediately. If not, there's a whole lot more to be had for the ridiculously cheap price of just £5. Yes, that's right, a stonking stick for just a fiver. Get ACU next month and make sure you've got a postcard at the ready.

On top of that, there's part two of the epic ACU joystick round-up, featuring the pick of the crop for your Christmas blasting. Miss it at your own peril.

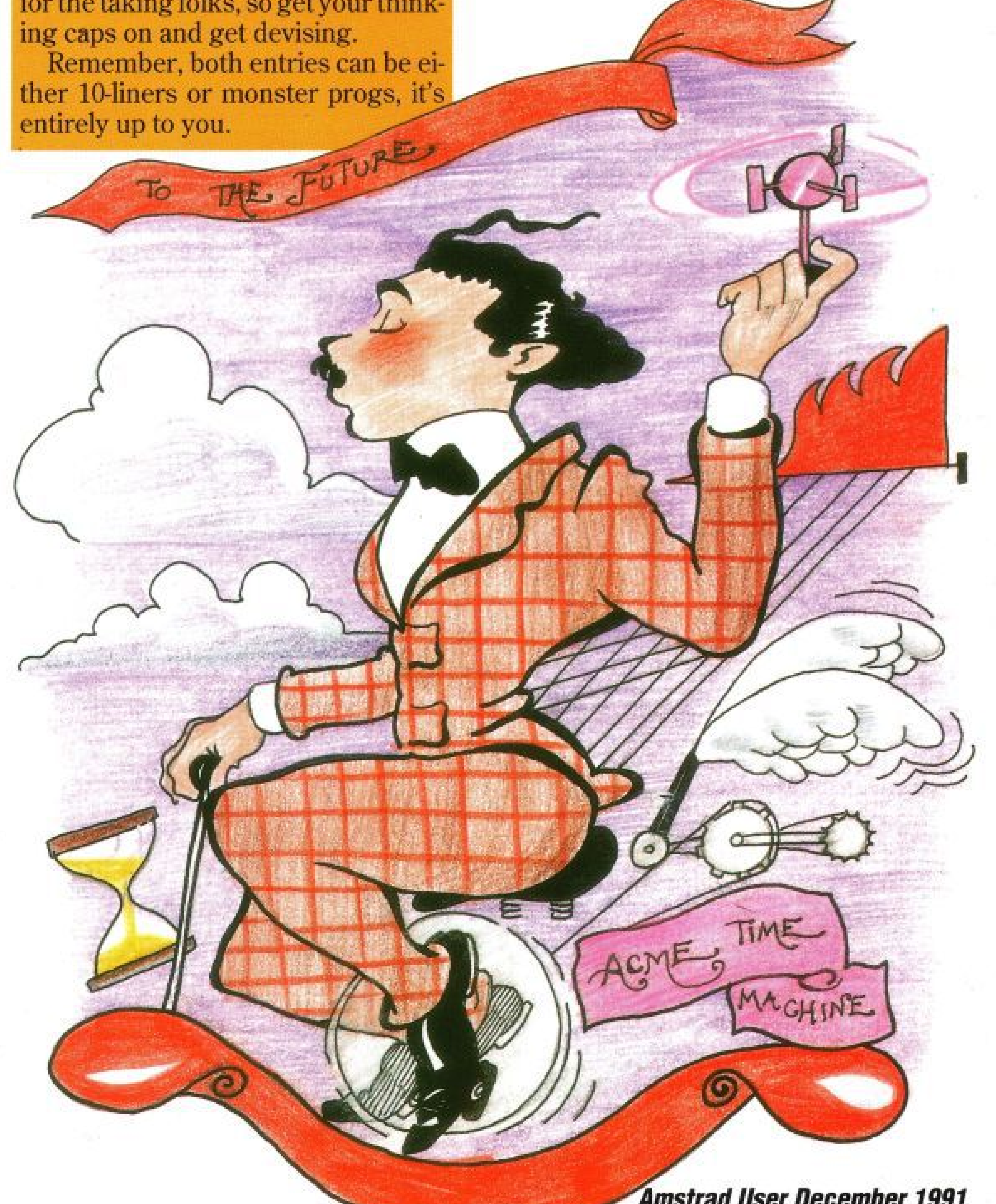
ANCIENT ANTHOLOGIES
Does anybody remember the infamous Amstrad Anthologies and the Utilities Unlimitedd cassettes produced by ACU way back when? You do? Good news, because our limited collection is looking very thin on the ground. If any one of you can send in copies of those venerable tomes, we at ACU promise to revamp them and make them available to everybody on disc and tape ASAP. Furthermore, the PIECES section has been temporarily removed and will return very shortly, packed with exciting proggies for your perusal, at knock down prices under new management. Keep sending in the proggies and you could be looking forward to a fat royalty fee very shortly.

CARTOON TIME
If you think your BASIC isn't up to scratch in the animation stakes, think again. Get hold of next month's ACU for a fabulous lowdown on the colour swapping process, to make your screen come alive with cartoon characters. Featuring some excellent demos, this little feature should come in very handy for budding games creators.

GAME ON
Speaking of games creation, our Mammoth Games Creation Extravaganza is hotting up a treat, with some superb entries to date. Don't forget, judging takes place soon after Christmas, so keep your own efforts flooding in. Moving on to the serious side, the Brunword ROM module is still well and truly up for grabs. It's yours for the taking folks, so get your thinking caps on and get devising.

Remember, both entries can be either 10-liners or monster progs, it's entirely up to you.

DON'T MISS OUT
If you want to get in on the excitement, then be sure not to miss the Christmas edition of ACU. Discount games, superb prizes, exciting new features and all the best from the ACU crew await you. See you there!





YOUR MISSION

- This game's a doddle. Even for the inexperienced player.
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☐ Access ☐ Amex ☐ Diners
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